

THE TREATMENT
OF
PARALYSIS
AND
PARALYTIC DEFORMITIES

ROTH



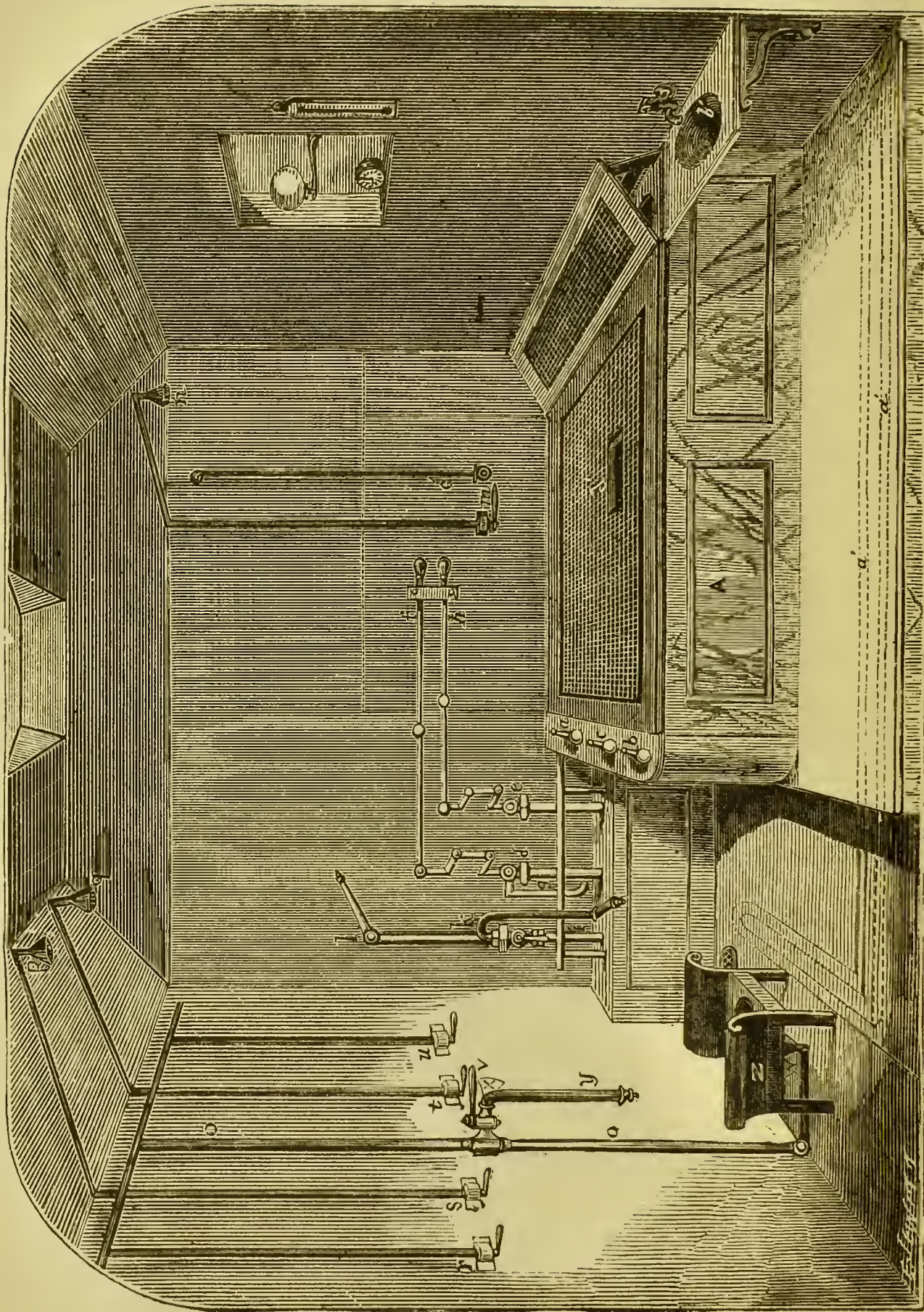
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J. G. Wham Esq
with the Author's

Wm. J. G. Wham





THE RUSSIAN PATH, INVENTED BY DR. ROTH, AND USED AT HIS INSTITUTION, 16A, OLD CAVENDISH STREET, CAVENDISH SQUARE.

For Description, see page 94.

PARALYTIC DEFORMITIES.

Illustrated by Numerous Cases.

WITH A SHORT SKETCH

OF

RATIONAL MEDICAL GYMNASTICS,
OR, THE MOVEMENT-CURE.

WITH THIRTY-EIGHT ENGRAVINGS.

BY

M. ROTH, M.D.,

PHYSICIAN TO THE PRIVATE INSTITUTIONS FOR THE TREATMENT OF DEFORMITIES AND
CHRONIC DISEASES IN OLD CAVENDISH STREET, LONDON, AND GLOUCESTER PLACE,
BRIGHTON, AUTHOR OF "HANDBOOK OF THE MOVEMENT-CURE," ETC., ETC.

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DEDICATED

TO MEDICAL PRACTITIONERS who, unwarped by preconceived notions, consider it their duty to examine new applications of known means or new methods of treatment, and, if convinced of their efficacy, have the courage to advocate them, although they may not be approved by orthodox and common routine practitioners, who condemn what is unknown to them, without taking the trouble to investigate it.



PREFACE.

MANY professional men begin their practice without a knowledge of the curative effects of hygienic means, and without having seen any treatment of paralysed and deformed persons; while those who have seen the paralysed treated only by medicines, and the deformed only by mechanical contrivances, believe, in obedience to the preconceived notions of their teachers, that it is beneath the dignity of a professional man to do anything else but prescribe medicines for the paralysed or apply machines to the deformed.

Medical men neglect the application of simple and hygienic means, and this is why a large number of paralysed and deformed people fall into the hands of quacks and rubbers; a single case improved or cured by such people gives them the credit of possessing a peculiar power of curing or relieving these complaints. A patient who has had the advice of eminent medical men, and still remains in the same or even a worse state, is, when improved by a rubber or quack, even in the slightest degree, the best advertisement for the operations of such persons.

The few medical men who do not "*jurare in verba magistri*," but reason for themselves, and wish to benefit their fellow-creatures, whether by medicinal or

hygienic agents, will perhaps feel inclined to examine the means mentioned in this pamphlet, for the incompleteness of which I must apologize, as the greater part is a reprint of a paper written for a medical quarterly* during the pressure of professional engagements.

I have only added a short sketch of the scientific application of movements, based on physiological and pathological principles, the knowledge of which will be useful, not only for the treatment of paralysis and deformities, but also for the diagnosis and treatment of many other diseases.

I have also added a few notes about the Russian bath, and hope that the benevolent promoters of the hospital for the paralytic will be induced to make the necessary arrangements, that those unhappily afflicted with this complaint should have all the advantages to be obtained from the scientific application of hygienic means, especially from medical movements and baths, as both these means have been hitherto almost entirely neglected in the treatment of paralytic affections.

M. ROTH.

16A, OLD CAVENDISH STREET,
LONDON, W.

31st January, 1860.

* "The British Journal of Homœopathy."

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“At any rate we have long been convinced, and have long acted on the conviction—we humbly believe with unusual success—THAT BODILY EXERCISE IS ONE OF THE MOST IMPORTANT MEANS IN THE CURE OF NEARLY ALL CHRONIC DISEASES, and that it and proper diet and bathing, with a *modicum* of the simplest medicaments, will slowly yet surely restore lost health in thousands of cases, where the ordinary routine of heroic-medication, such as prevails so extensively in England, will not only fail to cure, but inevitably augment the malady.”—*British and Foreign Medical Review* (*Sir John Forbes*), vol. 20.

CONTRIBUTIONS

TO THE

HYGIENIC TREATMENT OF PARALYSIS.

EVERY practitioner knows by his own experience how tedious the treatment of Paralysis is; it might therefore be of some interest to give a short sketch of the treatment generally pursued, of some hygienic means which are often very efficient, and also of the mode in which the influence of the patient's will, in combination with our medical and hygienic treatment, can contribute to a cure or considerable improvement of a paralytic affection.

INJUDICIOUS TREATMENT OF PARALYSIS BY MEDICAL MEN.

It is painful to see how frequently paralysed children are subject to tenotomy, because muscles are contracted in consequence of the paralysis of their antagonists; the result of such operations is, that the child loses even the use of the healthy although contracted muscles, without any improvement in the paralysed part.

Other children, affected with a paralysed limb, and not benefited by some medicinal agent, are entirely neglected, and thus spinal curvature, or deformity of a limb, is superadded to the original complaint.

Some patients indiscriminately undergo a treatment by *nux vomica*, *strychnine*, or *veratrum*, till the expected tetanic

shocks prevent the further administration of the medicine, which has failed to produce the desired effect; others are burnt with red-hot iron wires all over the paralysed and emaciated limbs, or moxas, setons, tartar-emetic inunctions, leeches, and cupping applied along or on both sides of the spine, if a central paralysis is suspected; other patients are made the mediums for passing through them very strong electric currents, and are happy to enjoy the artificial jerks and muscular contractions while under the influence of this powerful agent, which, especially after its indiscriminate application, is only too often followed by a still greater loss of sensation and muscular power.

Many paralysed, although without power of reaction to the usual atmospheric changes, are exposed to the daily use of cold powerful douches, and to repeated applications of cold water, without being able to regain even their natural temperature.

To counterbalance these cold-blooded amphibious patients, I can quote those who, at the advice of their medical friends, begin with small quantities of rum, which are daily increased to half a tumbler and more; these certainly do not complain much of cold.

Many other patients are left entirely to their fate, and must content themselves with a gentle aperient one day, and a little tonic the next day, while their general regimen and diet is neglected.

Some paralysed pass through these various processes, and find generally that their complaint is gaining ground, and finally make up their mind not to do anything more, if they still possess any will; and if this is not the case, they become quite apathetic, and lead merely a vegetative life.

TREATMENT OF PARALYSIS BY QUACKS AND RUBBERS.

Another set of patients—under the hands of persons professing to cure every case of paralysis—have daily to enjoy the luxury of a hot-air or vapour bath; after this, to be shampooed and smeared over with infallible Indian and other ointments, the composition of which is a most rigidly-kept secret in the family of the present happy proprietors, who are satisfied to have enjoyed the presence of their credulous victims, whose

purses certainly move easier, although their limbs do not participate in the same benefit.

Many patients fall into the hands of rubbers, belonging to the craft of St. Crispin, who, while boasting of their ignorance and the sharpness of their eyes, apply in every case embrocations of ammonia and other strong stimulants, cover the backs and the limbs of their victims with pitch-plasters, which are torn down two or three times a week, when the drugs are rubbed in—an operation which the witty operator calls, for the amusement of the patient, “pickling the back.” These quacks always promise to cure, and to give weight to this assertion, offer to treat the patient under the condition of *no cure no pay*; but although the patient is not improved, he soon receives the bill, which he is obliged to pay, because he is ashamed of having undergone the plastering and rubbing process. I saw, but a few days ago, a patient recommended to me by Dr. Kidd, to whom a bill of fifty-five guineas was sent by such a rubber, although the treatment was undertaken on the condition of “no cure no pay.” Other rubbers, ashamed of ignorance, explain to their credulous patients the origin of their complaint by a thickening of the synovial fluid, which must be rubbed away, even where no synovia exists. It is very sad that many patients are induced to place themselves under the treatment of such quacks by the advice of regular practitioners, who, when really convinced of the importance of embrocations, plasters, and frictions, would do more honour to their profession by themselves prescribing the drugs, and by giving directions to the attendants of their patients how to apply the frictions and medicines for external use. Such medical men would thus save—especially their female patients—the most disgusting practice of being stripped naked, to be rubbed by rough men; the practitioners would not be exposed to the suspicion of playing hand in hand with such renowned quacks; and they would not increase their fame by patronising such practices, and contributing to preserve the ignorance of the public, which sees a wonder in every cure performed by an uneducated man, who is always a great genius in being able to get so many dupes, while similar cures performed by regular practitioners are considered as the natural effects of the means applied.

DEFINITION OF PARALYSIS, AND ITS VARIETIES.

Paralysis, or palsy, is usually defined as a partial or total loss of sensation or power of movement, or of both these faculties; in the latter case it is called *perfect*, but if either sensation or power of movement is present, it is *imperfect*, or *paresis*. As the term *anæsthesia* designates the loss of sensation, *paralysis* is used to designate the loss of power affecting either involuntary or voluntary muscles, or both; if almost all parts of the body are affected, it is *total*; if one side of the body, *semilateral*, or *hemiplegia*; and if the lower half of the body, *paraplegia*; but if a part of the body, or one limb, or a part of it, is affected, the paralysis is *local* or *partial*, which must not be confounded with *acampsia* (apparent paralysis), caused by some special or local affection of a part; thus, *acampsia muscularis* is caused by contraction or stiffness of the muscles, *acampsia tetanoides* by a tonic spasm affecting a whole limb, or only a group of muscles, or a single muscle.

When paralysed parts are constantly shaking, or moved, or rather jerked, without the slightest influence of the patient's will being directed to these parts, the complaint is called *paralysis agitans*, or shaking palsy; such jerks often accompany the gaping or yawning of the paralysed; they follow also after impressions acting powerfully on the mind.

DIVISION OF PARALYSIS.

Idiopathic paralysis occurs rarely, and only in parts not sufficiently provided with arterial blood, in consequence of local impediments in the blood-vessels, also during rheumatic and arthritic affections, after injuries of single or all the filaments of a motory nerve; thus groups of muscles, or single muscles, are sometimes idiopathically affected; the bladder is also often thus affected.

Symptomatic paralysis is frequent in acute and chronic diseases of the brain, spinal chord, or of single nerves,—of the substance as well as of the surrounding membranes or sheaths of these organs,—or of other adjacent parts, and occurs therefore often very suddenly, while it is preceded in many other instances

by various premonitory symptoms. Congestions, inflammations, internal rupture of the nervous substance, or of the surrounding membranes, apoplexy, cerebral inflammation, meningitis, hydrocephalus, inflammatory and other diseases of the spinal chord, are frequently followed by paralytic affections. Convulsions precede paralysis caused by meningitis, and painful contractions of the muscles are symptoms of inflammation and softening of the nervous substance; if one hemisphere of the cerebrum or cerebellum is the seat of the disease, the opposite side of the body is affected; disease of the protuberantia annularis, or of another central point, produces paralysis all over the body; disease of the thalamus opticus causes paralysis of the upper limbs; and when the corpus striatum is affected, the lower limbs are affected. This paraplegia differs from that caused by central paralysis of the spinal marrow in this, that when the spine is supported, as, for instance, in a lying position, the legs can be moved, which cannot be done if the paralysis proceeds from the brain.

Injuries of the spinal chord produce paralysis of the parts below the injured part; and the sensation of an iron hoop round the body is generally a symptom of an affection of the dorsal or lumbar part of the spinal chord.

Sympathetic paralysis is produced by diseases of the digestive organs, of the intestinal mucous membranes, worms, hysteria, hypochondriasis.

CAUSES OF PARALYSIS.

Besides those mentioned under the head of symptomatic paralysis, the most frequent are dynamic and other influences acting directly upon the nervous system, as sudden fear, great anxiety, grief, care, constant mental work, mental or bodily over-exertion, inanition, fatigue, hunger, marasmus, excesses in *Venere et Baccho*, violent spasms, epileptic, hysterical and other fits, concussion of the brain and spinal chord, plethora arterialis or venosa, exudation, pressure, effusion of blood, extravasation, disorganisation of the bones of the skull, of the vertebræ, spinal curvature, tubercular kyphosis, suppression of serous excretions, of hæmorrhage, of transpiration, suppressed secretion of milk

(milk metastasis), suppressed herpes or exanthema, suppressed piles, abdominal irritation by worms, indigestion, difficult dentition, onanism and masturbation, poisoning by lead, arsenic, mercury, nicotine, woorara, hydrocyanic acid, belladonna, stramonium, hyoscyamus, &c. Ague causes intermittent paralysis.

The various causes produce either *cerebral* or *central paralysis*, proceeding from the brain or spinal marrow, or from both; *peripheric paralysis*, the result of diseases of the nerves, or their surrounding membranes, after they have passed the bones of the skull or the intervertebral foramina; and *symptomatic paralysis*, which is the effect of a reflex action upon the central or peripheric nervous organs produced by some other disease or injury.

PROGNOSIS.

Paralysis is generally of a chronic character, and lasts for years, and even during the whole lifetime, as in paralysis congenitalis; the shortest time in affections of the sympathetic, longest in spinal and peripheral disease; *acute* paralysis lasts sometimes a few hours only, or a few days, as, for instance, after hæmorrhage within the brain.

The cure of central paralysis, which is more dangerous than the peripheric, is rarely complete, as some trace always remains. Disorganisation of the nervous substance, tumours, abscesses, softening, indurations in the central organs, are generally incurable; but many paralytic affections, whether peripheric or produced by arthritis, rheumatism, external injuries, suppression of active secretions, &c., can be either cured or considerably improved.

MEDICINAL TREATMENT.

The medicinal treatment of the old school embraces the greater part of the *Materia Medica*, and the mere enumeration of all the medicines used, internally and externally, would fill pages; therefore I will name only a few so-called specifics. Arnica, Belladonna and Moschus have been recommended when the central cause is in the brain; Assafœtida, Oleum dippelii, Nux vomica, Strychnine, Brucine, Veratrum, when the spinal chord is primarily affected; these act on all the muscles pro-

vided with spinal nerves, and produce convulsive motions; they should be used according to Marx with the greatest caution, and only in cases where the innervation is too weak, and no organic change exists in the central nervous organs; the same author adds, “ they produce frequently in the beginning, in the paralysed limbs, a sense of formication, local perspiration, convulsive movements, and even a certain degree of moveability, and notwithstanding all these symptoms, *the improvement is only apparent, and is often followed by considerable spasmodic complaints, tetanus, and speedy vital exhaustion.* Oleum cajeput, Capsicum, Pimpinella, Pyrethrum, are recommended in paralysis of the tongue, internally as well as externally; Phosphorus in prosopalgia; Cantharis, Solidago virga aurea, Terebinthina, in paralysis of the renal nervous plexus; Secale cornutum in uterine and hysteric paralysis; Argenti nitras and Mercurius in paralysis saturnina.

Inhalation of oxygen, ammonia, urticatio, dolichos pruriens setons, moxa; tepid, warm, hot, cold water baths; bathing in warm sand, in the blood or contents of the stomach of recently killed animals; dry air, vapour, Russian and mineral baths; electricity in its various forms, as electro-puncture, galvanopuncture, magneto-electricity, the shocks of the gymnotus electricus, magnes artificialis; dry rubbing and shampooing, belong to the external apparatus recommended to assist the numerous internal medicines.*

The homœopathic practitioners recommend, according to the most prominent symptoms, Anacardium, Arsenicum, Belladonna, Bryonia, Carbo vegetabilis, Coccus, Colchicum, Conium, Cuprum, Dulcamara, Hyoscyamus, Kali, Laurocerasus, Natrum muriaticum, Nux vom., Oleander, Opium, Phosphorus, Plumbum, Rhus radicans, Rhus toxicodendron, Secale, Silicea, Stannum, Stramonium, Sulphur, Zincum, &c.

HYGIENIC TREATMENT.

In many cases the medicines employed have not the desired effect; “ and even when we are able to remove the cause, the

* More on the treatment of the old school can be found in Copeland's and other medical dictionaries.

paralysis which has lasted any length of time will not be cured, because, in this case, neither the dried up fountain of cerebral excitability nor the alterations in the contractile tissues can be restored by the mere removal of the cause.”—ROMBERG. Many paralytics can be more or less improved by such hygienic means as have for their object *the restoration and maintenance of the integrity of the muscles, and the restoration of the excitability of the central organs*; without the accomplishment of these two indications, no cure or improvement is possible.

AGENCY OF THE WILL.

“ Our ignorance, and the incurability of the conditions which are the source of the interrupted excitability, are partly at fault, *partly the absence of any remedies* by which we are able to act directly upon the central organs. *We are only acquainted with two influences by which we can do it, viz., mental and reflex stimuli.* The former are obtained by THE AGENCY OF THE WILL and the emotions, and not only by sudden and violent affections, as joy, fear, despair, but also by an enduring psychical tension, as may be induced by an enthusiastic reliance upon divine and human aid.”—ROMBERG.

To the most powerful *reflex stimuli* belong the following, not medicinal means—brief applications of cold and heat, hot vapours, sprinkling and affusion with cold water alternating with warm water, frictions in a centripetal direction; while the passive manipulations of kneading, pressing, traction, pulling, clapping, tapping, percussion, and many others,* help considerably to fulfil the first indication, viz., the restoration and maintenance of the integrity of the muscles.

I have quoted Romberg, the greatest living authority on diseases of the nervous system, in order to prove that we do not know any medicinal substance capable of restoring the lost excitability of the central organs, and that we must rely only upon the agency of the will and the emotions; a similar opinion is expressed, but in other words, by Dr. Robert B. Todd,

* Described in my *Handbook of the Movement-cure*. Published by Groombridge and Sons, 5, Paternoster Row.

in his clinical lectures on Paralysis and Diseases of the Brain :
 “ You will often be consulted as to ‘ some expedient for promoting the restoration of the paralysed limbs to their normal condition.’ To this question, having given a fair trial to the various means which have been proposed for this purpose, I must reply, that I know of nothing which more decidedly benefits the paralysed limbs *than a regular system of exercise; active when the patient is capable of it, passive if otherwise.* As to the use of electricity, which is now much in vogue, or the employment of *strychnia*, which has been recommended, I feel satisfied, as the result of a large experience, that the former requires to be used with much caution, and that the latter is apt to do mischief, and *never does good.* I have seen cases in which, after the employment of electricity for some time, that agent has apparently brought on pain in the head, and has excited something like an inflammatory process in the brain. And so *strychnia* also will induce an analagous condition of brain, and will increase the rigidity of the paralysed muscles. Some good may occasionally be effected by the use of the friction, or cold water, or shampooing, all of which tend to improve the general nutrition of the nerves and muscles.”

THE WILL AND EXERCISE.

John Shaw, in his enquiry into the causes of partial paralysis and wasting of the limbs, says :—“ Whatever may have been the original cause of the wasting and paralysis of the limb, I would recommend that we should, in addition to such plans of treatment as the state of the constitution may call for, endeavour, by friction, shampooing, warm and cold bathing, &c., to excite a certain degree of action. This is to be assisted by mechanical contrivances, to bring the paralytic muscles into play. To restore a part to its pristine state of vigour, we must attend to the principle that *active exercise of an organ is necessary, not only to its perfection, but EVEN TO ITS PRESERVATION.*”*

Mr. Ward (in his Remarks on Paralytic and other Diseases,

* *On the Nature and Treatment of the Distortions of the Spine, etc.*
 London. 1823.

London, 1840) observes, that “The manner in which stimulants are supposed to act in paralysis, is by increasing that energy of the brain which is necessary to the production of muscular action. *The stimulus which appears to me the most safe, the most completely under our controul, and the best calculated to effect this object, is that of frequent exercise, excited by or dependent on volition.*

“From the phenomena which the disease presents, it would appear that an interruption takes place between the governing principle and the subordinate agent by which the movements of the body are performed; although the pressure or other cause affecting the brain be removed, and its healthy functions restored, yet the connection having been once destroyed between the sensorium and the muscles, the habit of association has been thereby lost, and the latter are no longer subservient to the dictates of the will.

“The necessity of the frequent exercise of volition to accustom the muscles to obey the impulse of the mind, and its influence in producing that effect, may be illustrated by a reference to those acts in which the association between volition and action is enjoyed in the highest practical degree of attainment, as in those of fencing, the feats of jugglers, &c.*

“A tyro has the same power of volition over the number of muscles which are to be exerted as the most expert professors of the respective arts; but his first efforts are, however, unconnected and irregular, and *it is only by repeated attempts that he is enabled to acquire the power of immediate association between volition and muscular action.* A want of attention to these circumstances will explain the general failure of the usual means that have been resorted to for the cure of paralytic affections after the primary disease of the brain, whatever may have been its nature, has been removed; the intimate connection and

* We have daily an opportunity of admiring this influence of volition on the muscles during the performances of great singers and musicians, who execute the most difficult passages with a rapidity and precision which is almost incomprehensible, when we think how subservient to the will the muscular obedience must be, in order to be able to express through movements the command of the will.

dependence which exists between the sensorial and muscular power has not been adverted to, *and that most powerful of all muscular stimulants, volition, has been altogether overlooked, or regarded only as a casual and secondary means of cure.*

“We constantly see individuals who have attained the full and free use of the leg of the affected side, whilst the arm perhaps hangs as useless as when first attacked by the disease.”

Dr. Cocoke, in his valuable History of Palsy, observes, “that in hemiplegia it almost always happens that the power of the leg returns long before that of the arm ; I have seen more than one case in which the arm of the affected side has remained paralytic for several years after the restoration of the leg.

“The character of the malady in the majority of these cases, as far as relates to the state of the brain, must be the same ; and the reason of the difference in the recovery of the two limbs will not appear difficult of explanation. The invalid is under the necessity of using the leg frequently, the effects of volition on the muscles are stronger and more constantly exercised, and necessarily produce a greater determination of blood to the limb, consequently an increase of its bulk and strength. The action of the arms not being so indispensably requisite for the common purposes of life, the inducement to the exercise of it is less, especially as its uses can be readily supplied by that of its fellow.

“Friction with the hand, manipulation or percussion, appears to have a local effect on the nerves distributed upon the muscles, by increasing their energy, as well as inducing a greater sanguiferous circulation, and a consequent enlargement and correspondent increase of strength in them ; these stimuli I consider inferior in their effect to that excitement produced by the act of volition ; they are, nevertheless, to be regarded as powerful auxiliaries.”

The opinions of Romberg, Todd, Shaw and Ward, with regard to the powerful curative influence of the WILL in restoring *the excitability of the central organs*, and of the efficient aid of manipulations in the maintenance of the integrity of the muscles, are corroborated by many other authors who have paid attention to the treatment of paralytic affections ; but

exercise only and manipulations are not sufficient for curative purposes, and every case should be made a separate study, and the necessary regimen and diet prescribed, with a precision as if they were powerful medicines.

AIR.

Besides the avoidance of the causes, all paralysed will be benefited by almost constant exposure to fresh and pure air, and if they are able to take a walk in the open-air, it is better than to be dragged along in an invalid chair, or to drive about in another vehicle; their bedrooms should be *constantly* ventilated, and the windows of their sitting-rooms frequently opened, without exposing them to a draught; with few exceptions, I forbid boating, and prefer to expose the patients to a nice sea-breeze while they are on shore.

ABLUTION, BATH, AND POSITION OF THE PARALYSED PART.

Even with the *greatest* cleanliness of their body, dress, and bed, their exhalations are generally of such an offensive nature, that particular attention should be paid in this respect. The temperature of the room should not be under 65 deg., and the water used for their ablutions should be tepid, and only when their power of reaction increases less warm water should be used. An ablution in the morning is mostly recommended, in such a manner that one part of the body or one limb is soaped, washed, dried, rubbed till it is warm, and covered, before the same is done for a second part. The paralysed limbs are always less warm to the touch of another person, and either very pale or of a leaden hue; these parts must be washed with warmer water than the rest of the body, and must also be placed in such a manner that the reflux of the venous blood should be accelerated by the position; pillows of horse-hair, chaff, leaves of maize, seagrass, &c., having the form of a wedge, assist the patient in keeping up comfortably the desired position; when he is lying, reclining or sitting, a triangular handkerchief bound round the neck forms a kind of cradle for paralysed arms, hanging loosely down; by the aid of air and other cushions, the loins can be supported, &c.

In proportion to the increase of reaction in the whole body or the paralysed limb, the temperature of the water used for the ablution should be lowered; the plan I pursue, is to lower the temperature every third or fourth day, by about half or one entire degree. Sometimes it is necessary to cover the patient more heavily, and to retain his animal heat before the ablution is made; and in other cases the affected part is wrapped up with warm or hot flannels, which are either dry or moist, depending upon the state of the skin.

RUSSIAN BATH, AND MANIPULATIONS.

The general and topical application of vapour is also very useful for the reproduction of the natural temperature, especially when immediately followed by less warm showers, douches or ablutions; these act as reflex stimuli, and their effect is still more increased if kneading, pulling, percussion and friction, and other manipulations, are resorted to after the ablution or bath. Those who are more interested in this theoretical subject, will find some information in my pamphlet on the Russian bath,* and can get more practical insight by visiting the bath,† where they will find the attendant ready to show the various applications of tepid, warm and cold water, in the form of bath, shower, douches, &c., &c.

Medical men will often find it very difficult to induce their paralysed patients to make use of ablution, and therefore they will be glad to know that in the Russian bath their prescriptions can be carried out *ad literam*. Such a prescription contains—1, the length of time in the bath; 2, the temperature; 3, the general and local application of certain manipulations, and of the steam and water; and finally, if required, 4, some special directions whether the patient should be kept in a particular position, whether his head is to be kept cool, whether he is to perspire after the bath, etc., etc.

* Published by Groombridge and Sons, 5, Paternoster Row, London.

† 16a, Old Cavendish Street.

FOOD AND DRINK.

After air and water, attention is to be directed to food and drink. For those who are not able to take active exercise, animal food should be given in smaller quantities ; but, on the whole, they may have good nourishing food in moderate quantities, as it is one of the peculiarities of paralysed persons beyond a certain age, rather to take an excess of food. There is in general no objection to moderate quantities of beer or wine, when the patient has been accustomed to take them, but if this was not the case, they must be considered as medicines ; the same might be said of tea and coffee ; but brandy, gin and ale cannot be permitted.

DRESS.

The dress should be loose, but always sufficiently warm ; the paralysed part is to be kept warmer than the rest of the body ; one or two additional layers of soft leather, cotton, flannel or fur answer this purpose best. The quality of the material and quantity of the dress depend upon the season, the degree of the patient's general powers of reaction, and the diminution of warmth in the paralysed limbs ; rabbit or catskin, the hairy side in contact with the skin, answer in those cases where other materials fail to keep up the desired amount of warmth.

Having published elsewhere* a detailed description of the passive manipulations which act as adjuvants in the treatment, I wish to call particular attention to the *pressure on the nervous trunk or smaller single nerve* pervading the paralysed limb. This pressure is frequently combined with vibration, so that the whole part is in a state of gentle vibratory motion.

MODE OF MAKING USE OF THE STIMULUS OF VOLITION FOR CURATIVE PURPOSES.

The following is the method in which the mental stimulus of volition (the innervation) can be, and is brought into action, in order to carry out as far as possible the most important indi-

* *Handbook of the Movement-cure, and cure of Chronic Disease by Movements.* Groombridge and Sons, Paternoster Row.

cation in the treatment of paralysis, viz., the restoration of the imperfect or lost excitability of the central organs.

As long as there is only a trace of movement in a part, the repetition of the movement will increase the influence of the will upon that part, especially as the full power of the will is brought to act only upon one group of muscles, or only upon a single muscle at a time. If there is no trace of movement, the patient is encouraged by the medical man to make an attempt to move some part; but as this attempt fails to produce any movement, this is executed for the patient during the moment of his attempt *to will* the movement. Although this appears very tedious, and no result is visible in the beginning, soon some slight trace of movement appears; the patient feels that he is able to exert his will, and by degrees he is conscious of some action, which is scarcely visible to others; and in this manner the attempts to exert the influence of the will upon some muscles are daily repeated. Great caution is necessary not to fatigue the patient, which happens in the beginning even after the first two or three attempts; but if such an attempt to exert the will is accompanied by a dull or acute pain in the head, this is a contra-indication to the *active* treatment, and we must content ourselves to apply the other means till the pain disappears. If the patient succeeds in making the first visible movement, he will be more and more encouraged to pursue the indicated plan of treatment; his power of volition will increase, and in the same ratio, its influence upon the muscular fibre.

Those who smile at the idea of going on with an attempt to influence by the will a part, even when there is no visible effect, and who would like to substitute electricity, which, owing to the physiological researches of Duchesne and Raymond, is now very fashionable for rousing the innervation, must be reminded that "innervation is an organic functional act, subject to the laws of waste and repair of the tissue performing it;" and although there is some remote analogy between innervation and electricity, as they both produce muscular contraction, one cannot be substituted for the other; because the stimulus proceeds in one case from the mysterious internal vital source, and in the other case is the result of an external artificial cause. In

practice, we find that all paralyses of motion which, in the absence of disease of the central nervous organs, or of disorganisation of the nervous and muscular tissues, are capable of some improvement, can be more lastingly benefited by natural innervation than by electric or any other stimuli.

THE HYGIENIC TREATMENT DOES NOT EXCLUDE OTHER CURATIVE MEANS.

Having laid down the general principles of the hygienic treatment to be pursued in paralytic affections, I wish particularly to mention that *I do not* advocate it exclusive of any medicinal or surgical treatment; but if powerful medicines, as *morphine*, *hyoscyamus*, *belladonna*, *chlorodyne*, *chloroform*, *veratrum*, *strychnine*, &c., are simultaneously used, their dose daily increased, and such a course pursued for some time, not much benefit can be expected from a hygienic treatment, in which the energy of the will is to be roused, and its influence upon the muscular system increased.

There are two symptoms especially which induce the patients to ask constantly for medicines; and these are constipation, and pains in the affected limbs.

TREATMENT OF CONSTIPATION IN PARALYSED PERSONS.

It is at present a fact generally admitted by every thinking medical man, that a continuous administration of aperients of any kind in chronic constipation keeps up the inactivity of the bowels; and this is still more the case in paralysed persons who are prevented from taking active exercise of any kind.

A change of diet, and such manipulations applied on the abdomen as are described as concentric, or alternate abdominal stroking, fulling and kneading of the abdominal organs, pressure on the solar plexus, cold damp compresses placed on the stomach when the patient goes to bed, and which are kept on during the night, a tepid or cold water enema every second or third day, the simple means are sufficient, in a large number of cases, to remove the constipation, if the patient is able to make use of the muscles of the abdomen and practise for himself, several times a day, a few trunk flexions and trunk turnings, in

all directions, or the flexion and turning combined, and trunk rotation. These exercises will assist still more in increasing the peristaltic action of the bowels. In very obstinate cases, or where the symptom is of very chronic character, and has been kept up by *aloes*, *gamboge*, *jalap*, *rhubarb*, *blue pills*, or saline aperients, the hygienic means can be assisted by small doses of *sulphur* and *nux vomica*, given on alternate days, twice or three times a day.

I recollect a paralysed lady who was relieved from constipation by the means described above, who for ten years had been in the habit of using aperients. This was effected after a few weeks of treatment, although her paralysed leg prevented her ever leaving the chair in which she was placed in the morning, and from which she was removed in the evening.

TREATMENT OF PAINS IN PARALYSED PERSONS.

The other symptom, viz., the pains similar to a tic, with and without spasmodic jerking, in the paralysed as well as in other parts, is not so easily dealt with. Sudden meteorological changes are frequently indicated by these pains, for instance, the change of the direction of the wind, of the temperature of the air, of the electric tension in the atmosphere, etc.; these changes seem the most prevalent exciting cause of the pains;—also impaired general health and mental emotions produce them frequently. Very gentle stroking movements at a distance similar to mesmeric passes, gentle fulling and kneading of the limbs, heat, application of flannels dipped in hot water, of steam douches, bathing the painful limb in warm or hot water, heat applied by the aid of dry substances, as sand, salt, flour,—which retain the warmth for some time,—will soothe the pains, which are rarely constant, but more of an intermittent character. Active movements of the affected limb, with assistance of others, is advisable in cases where the power of motion is not entirely lost; but active and moderate exertions of the healthy parts contribute also to the diminution of the intensity of pain, and to its less frequent recurrence. When these means fail, *ignatia*, *cocculus*, *rhus*, *arnica* relieve sometimes; and, according to the provings, *hypericum perforatum*, will probably be also useful;

but I must earnestly caution against the use of narcotics and anodynes, because the appetite for these drugs increases irresistibly, and then, loss of mental vigour and general energy, lassitude, sleeplessness, must ensue, and all reasonable hope of even partial improvement vanish, while the patient undoubtedly shortens his life, and only increased doses of *morphine* or *chlorodyne* will produce a state of sleep, which has neither the invigorating nor the restorative influence of natural sleep. The following observation confirms the beneficial use of exercise for the relief of pains.

“It has been remarked by paralytic patients who have suffered much from the spasmodic twitchings and pains in the night, described by Pott” (further remarks on the useless state of the lower limbs), “that on using considerable muscular exertion, or frequently attempting it, and repeating it at intervals during the daytime, the pains and cramps either did not occur, or were lessened. To effect this object it appeared to be necessary to induce complete fatigue.”—WARD.

PARALYSIS OF CHILDREN IS THE CAUSE OF MANY DEFORMITIES.

Paralytic affections occur in infants and children more frequently than is generally supposed, and not only as hemiplegia, paraplegia, or paralysis of an arm or a leg, but also under the forms of simple and complicated club-foot, of inversion of the knees, contraction of the knees, chicken breast, compressed chest, lateral curvature, wry neck, high and low shoulders, deformities of hands and feet, similar in their appearance to birds' claws,—all these are frequently only paralytic affections of some groups of muscles, or of single muscles; some forms of awkwardness of the movements of the arms and feet, the want of security in walking similar to the tottering and tipsy walk, the want of power of balancing the trunk even in a sitting position, are due to incomplete or complete loss of movement in some muscles of the loins and back. The celebrated Professor Delpech has pointed out in his “*Orthomorphie par rapport à l'Espèce humaine*,” that paralysis of some muscles can produce deformities of the spine and limbs. He mentions (Vol. I. p. 71)

a very interesting case of a soldier who was wounded in the thigh, and when the wound was healed, had the following muscles of the leg paralysed, viz.: the peroneitibialis anterior, extensor communis of the toes, and the extensor of the big toe: the consequence of the loss of power in these muscles was, that the anterior part of the foot sunk down and inwards, the foot was in its whole length inclined inwards, and turned gradually inwards;—finally, the deformity increased to such a degree that the sole of the shoe covered the instep of the patient, who walked on the anterior extremity of the os calcaneum, on the dorsal surface of the os cuboideum, and on the malleolus externus.

Shaw has also observed, more than forty years ago, “that certain kinds of paralysis which occur during infancy have more or less effect in producing distortion at a later period. The species of paralysis most interesting in relation to distortion of the spine, is that which is marked by a wasting or deficiency in the growth of a particular part, although unaccompanied with much defect either in the power of sensation or of motion.

“Such cases are not only important in so far as they regard the organ affected, but in the influence which they have over other parts of the body; and this latter consequence is the more interesting as, by proper care, it may be counteracted. When one of the limbs becomes affected, not only is there a great deformity in the part itself, but the affection is often the source of distortion of the spine.”

That scoliosis is produced by paralysis of the respiratory muscles of one side is confirmed by the following:—“In infancy, and even in youth, the vertebral column becomes distorted, the vertebræ following the traction exerted by the muscles of the healthy side: they do so the more rapidly the younger the child is. If the disease lasts any length of time, and affects only one side, it is thus that scoliosis results. . . . If the respiratory muscles of both halves of the thorax are the seat of the disease, we shall find the thorax flattened at the sides; and in early childhood we not unfrequently find the sternum and the bent costal cartilages strongly projecting, giving rise to the so-called *chicken breast*, or *pectus carinatum*. The

inferior margin of the thorax is in this case also drawn in causing the abdomen to appear more voluminous and distended. Occasionally, the disease first appears in this shape ; and subsequently, when the muscles of one thoracic half have recovered their activity, is converted into paralytic scoliosis.”—(*Romberg's Neuroses of Mobility.*)

“ The origin of the paralytic affections in children is often traced back to the first dentition—to some acute disease, such as an exanthematic fever, after which, and subsequent to, an attack of convulsions, or, though rarely without them, the child, which was previously in good health, is found to be paraplegic ; the upper extremities, and in rare cases, the bladder and the rectum being implicated. The paralysis is afterwards confined to one or both lower extremities, in an equal or different degree ; sensation almost always continues normal ; movement is not entirely abolished, generally continuing in the thighs, though in a less degree, while the function is almost entirely destroyed in the legs and feet ; the patient is generally entirely unable to walk or stand, even when the trunk is supported, and locomotion is confined to crawling. The temperature of the legs and feet is considerably below the average—it sinks as low as 64°-70° Fahr., and the colour of the surface is livid. The deformity of the limbs becomes more marked with the progress of years, and shows itself in distortions of every variety, contraction of the knee and hip joint, varus, and inversion of the knees. The trochanters and the patellæ remain imperfectly developed, and the tubular bones present a smaller circumference than they have in health. In the further advance of the disease, curvatures of the vertebral column form in the dorsal and lumbar region.”—(*From Heine's Observations,—Romberg.*)

Duchenne confirms, also, by his electro-physiologic inquiries and numerous cases related in his “*Electrisation localisée*,” that paralysis of some groups of muscles, and even of some single muscles, gives rise to many deformities, because the antagonists of these affected muscles are in no way prevented from exerting their power upon the bones to which they are attached.

This is not the place to enter into the details of each deformity

as produced by paralysis, my object being only to call the attention of the reader, first, to the frequent occurrence of paralysis, and the necessity of a strict examination into the causes of the various complaints I have named ; and secondly, to the *absurdity of the merely mechanical and surgical treatment* so prevalent even in paralytic deformities. Cases like that quoted from Delpech are not rare, in which a club-foot or an imperfect ankylosis of the knee is produced by paralysis of some muscles. The family surgeon consults with orthopædic surgeons—the result of such a consultation is either that the patient must wear a machine to extend the *healthy* muscle, which is contracted because its antagonist, being paralysed, does not counteract the natural contraction, or that tenotomy is performed to lengthen the healthy, although retracted tendon, in order to restore the natural form of the limb deformed by paralysis, which disease, even by the most successful operations, is not, and cannot be cured ; but this operation does not even prevent in these cases a recurrence of the contraction of the healthy muscles, except by keeping the limb day and night for months and years in an extension apparatus ; the indiscriminate shampooing and rubbing of the whole limb often for hours daily—although not so reasonable as the special, passive, active, or combined movements applied during a hygienic treatment on the affected group of muscles or single muscle, nerve, or blood vessel—forms the only valuable part of the common orthopædic surgeon's treatment, and this part is frequently omitted.

The bad effects, and the mania for this indiscriminate machine treatment and the abuse of tenotomy induced, some time ago, the surgeon who advocated and (I believe) introduced tenotomy into this country, to protest against the abuse of this operation, and to recommend more perseverance in a hygienic, or as some like to call it, physiological treatment. This protest was published in the *Lancet*, under the form of some interesting papers.

AN ORTHOPÆDIC VICTIM.

Of the victims of such absurd orthopædic treatment, I will mention that of a girl of eleven years, with a distorted spine,

contracted knees, and club-feet. She was encased in an apparatus consisting of a broad steel hoop round the hips, to which were attached leg irons, to stretch and turn outwards both lower extremities; Scarpa's shoes were at the end of the irons for the purpose of fixing the feet in a natural position. The father was persuaded to believe that the child improved after tenotomy was performed, and could walk with the aid of crutches; but finally, seeing that he was deceived, he asked Dr. West's advice, who sent him, with the child, to me. When the apparatus was removed, two cold emaciated legs and deformed feet,—in fact, a *perfect* case of paraplegia,—was visible; and this was the result of tenotomy, and a machine treatment, during two or three years!

BAD TREATMENT OF PARALYTIC SPINAL CURVATURES.

With the exception of one case which was treated by tenotomy in Paris, by Guerin, and where the curvature began to return after about eighteen months, I have seen only the machine treatment applied. Thus, when one shoulder projects in consequence of paralysis of some muscles of the shoulder-blade—which deformity is often in connexion with a spinal curvature—the affection is treated by orthopædic surgeons and anatomical mechanics with an apparatus which, by the aid of small steel crutches fixed to a circular steel band resting on the hips, raises the shoulders, while a pad, fixed transversely, presses the projecting shoulder-blade inwards—(contrivances of this kind, skilfully prepared on the injurious principle of mechanically counteracting the effect of a paralytic or other affection)—are to be seen in the windows of every anatomical mechanic, and combine two advantages, viz.: of being more or less expensive, according to the renown of the maker, and to give to the surgeon an opportunity of adjusting it by turning a screw—an operation to be rewarded by a fee, and to be repeated every week or fortnight, and, according to the circumstances of the patients, sometimes even daily. This goes on even for years, till the patient loses his patience and throws the apparatus away, and finds himself worse than before.

This is the mode of treating many paralytic deformities by those who call themselves orthodox practitioners; and it must be admitted that they are satisfied to treat because the paralysis is never cured in this way; and if any improvement take place, it is due to the manipulations which are combined with the other treatment. The instances of such maltreatment are usually caused by the ignorance of the medical practitioner who has first examined the patient, and has not entered fully into the symptoms,—who sees only a change of form, which must be sent to the orthopædic surgeon, and to be treated only mechanically.*

CAUSES OF PARALYSIS IN CHILDREN AND ADOLESCENTS.

“The remote cause is often a deranged state of the bowels: the affection of the brain, or spinal chord, seems intermediate between the disturbance of the bowels and the paralytic muscles. But certain paralytic affections of the muscles are sometimes so instantaneous, that we must consider them as depending on a change which has suddenly taken place in the brain, or spinal marrow, or in the nerves, which supply the affected parts. These cases differ from the former in being generally accompanied with an immediate loss of voluntary power over the affected muscles.”—SHAW.

Several cases of sudden paralysis which I had under my treatment occurred during dentition. In one case, the mother attributes the paralysis to the lancing of the gums, as the left leg was seen to hang motionless on the morning after the

* The *abuse* of mechanical appliances for the cure of these complaints has attained to such a degree that, under the name of “The Spinal and General Orthopædic Association,” a *limited shareholder* company has been most seriously proposed; and, according to the prospectus published in the medical journals, the capital is to consist of £20,000; while a consulting physician, consulting surgeons, surgeons, assistant-surgeons, and district surgeons, form the medical staff of this association, and are to be paid, besides the dividend to the shareholders, by the profits which the philanthropic promoters of this scheme hope to make at the expense of their unfortunate patients.

operation. By a coincidence of circumstances, the daughter of the medical man who lanced this child in India, is also under my treatment, has also a paralysed leg, and the use of which she had lost during dentition, without being lanced.

In some instances there is an hereditary predisposition to some local paralytic affection, and the complaint begins only a few years after birth to be developed. Thus I have seen two little boys (brothers) affected with pes equinus on both feet, in consequence of paralysis of the flexors of the foot, where the affection was only visible when they were three years old. The mother was similarly affected, and belonged also to the victims of orthopædic surgeons, having undergone both tenotomy and machine treatment without any beneficial effect.

Two sisters of a boy affected with paralytic wry neck, had a similar predisposition—the elder sister, sixteen years old, in a considerably higher degree than a little one of three years, where I could only see the first traces.

Constitutional weakness, with and without strumous tendency, in infancy and childhood, is also a cause of paralysis.

RESULTS OF THE HYGIENIC TREATMENT.

A pupil of mine, Dr. C. Taylor, in New York, mentions (*Boston Medical and Surgical Journal*, of June 2, 1859) that he and his associate had twenty-three cases of paralysis under treatment, of which twenty were very much improved, while only three "*fast men*" were not benefited.

All the physicians on the Continent who are at the head of institutions for the treatment of diseases by hygienic means and medical gymnastics, agree that this mode of treatment is, although not successful in every case, still the most successful in comparison with any other treatment. Professor Weber in Giessen, Dr. Neumann in Berlin, Dr. Melicher in Vienna, and others, have published many highly interesting cases of paralysis cured or improved in their medico-gymnastic institutions; but in justice to Delpech, Shaw, Ward, Heine,

Stromayer, Romberg, Marx, Vetter, etc., who—before Ling, and the present advocates of the movement cure—have recommended the hygienic treatment in various forms of paralysis, I must quote a few passages from these writers to prove that some credit is due to them for their share in recommending the hygienic treatment, although I do not intend thereby to detract from Ling's great merit of having invented a scientific system of medico-gymnastic movements based on anatomical and physiological principles.

*Hygienic Treatment recommended, in several forms of
Paralysis, by eminent Authors.*

HYGIENIC TREATMENT OF SPINAL PARALYSIS.

“The treatment must be directed towards removing the secondary local causes of immobility. All attempts at a cure directed against an assumed morbid state of the spinal chord, whether exudation or inflammation, and the application of leeches, issues, nux vomica, electricity, &c., will prove fruitless; while those remedies which tend to encourage nutrition, to remove the contraction and flaccidity of the muscles, and finally to change the shape of the distorted bones, will prove useful;—how the continued use of water and vapour baths, frictions, movements of extension and flexion, and tenotomy, assisted by standing and walking exercise, rendered possible by ingenious mechanical contrivances, may improve and cure malformations which at first sight appear incurable, and have originated in an early affection of the spinal cord, is proved by delineations of cases, before and after treatment, contained in Heine's book.”—(*Beobachtungen der Lähmungs-Zustände der untern Extremitäten und deren Behandlung.*—ROMBERG.)

HYGIENIC TREATMENT OF PARAPLEGIA.

“The return of sensation, however trivial, should be hailed as the signal for the commencement of the local treatment by

muscular exercise, assisted by friction, manipulation, or percussion—the extent of which should be regulated according to the progressively increasing strength and powers of the patient. In some instances, I think these measures may be resorted to even before there is a return of sensation. In a patient on whom this plan was adopted, although at the commencement there was not the slightest sense of feeling in the lower limbs,—so much so that he was scalded, and vesications produced without his being sensible of it, and in which the bladder and rectum appeared also to participate,—yet by the use of these means, especially that of directing the influence of the will to attempt motion, at the same time exhibiting constitutional remedies,—the powers of sensation and motion kept pace with each other, and were so far restored that the patient was enabled to walk.”—(WARD—MARX.)

HYGIENIC TREATMENT IN PARALYSIS OF THE RESPIRATORY MUSCLES.—CHICKEN BREAST.

“In selecting our treatment, we must first attend to the cause, and then seek to augment the voluntary contraction in the muscles that have become inactive in respiration. This indication is best fulfilled by gymnastic exercises, and especially in suspending the body by the hands, by which means we induce an action in the serratus magnus. Gymnastics in themselves stimulate and invigorate the muscles of respiration, as shown by the increase in the circumference of the thorax, which takes place after a few minutes.”—(STROHMAYER—ROMBERG.)

HYGIENIC TREATMENT OF PARALYSIS.

“Paralysis,—sequel of apoplexy,—is very frequently cured by the will of the patient being energetically stimulated. The paralysed limb must be frequently moved by another person, while the patient himself simultaneously endeavours to move it. In this manner the perfect use of the limbs was restored.

A great share of the use of mineral waters, and of travels to bathing places must be attributed to the energetic *stimulus* of the will.”—(BRANDIS.)

“*Rubbing* and *brushing*, frequently repeated, and done with force, is efficacious in paralysis.”—(DE GUY.)

“*Rubbing* with the flat hand, flannel, or a flesh-brush, and exercise to prevent the stagnation of the blood, must be always applied wherever it is possible.”—(CULLEN.)

“Dry frictions on the spine and limbs cured a case of paralysis of the upper and lower limbs (without loss of sensation) which had been previously unsuccessfully treated by bleeding, blisters, and *nux vomica*.”—(GENDRIN.)

Exercise.—“When a paralysed limb can be moved, even in the slightest degree, or if a trace of the faculty of moving returns, it must be immediately used as a curative agent. To leave a paralysed limb without movement, is as bad as to exclude the light from an *amblyopic* eye. Those stimuli which best correspond to the function are always the most suitable means for preserving and restoring the activity of a part; therefore paralysed persons should be encouraged to walk with the help of crutches, or of a stick; to touch, to hold, to grasp, to raise various objects, and to try to do the same with objects of various sizes.”—(MARX, NEUMANN, VETTER.)

Exercise.—“In paralysis of the arms it is important, as soon as some power of movement returns, that the patient should raise light objects with an uneven surface: the objects are by degrees to be made heavier. It is scarcely possible to imagine how much, by persevering exercise, the weak power is strengthened. Very light things, as paper, cards, are used, and more easily raised than the heavier, with uneven surface.”—(MARX, VETTER.)

[illegible]

According to the preceding table there was no difference with regard to sex. The number of patients under twenty years and above that age was equal, proving that the frequency of paralytic affections in infancy, childhood and adolescence, is the same as in mature and old age; but if we compare the age and sex as shown in this table, we find that the proportion of males under twenty is seven to nineteen females, while above the age of twenty there were nineteen males to seven females.

NUMBER OF PATIENTS.	AGE.	MALES.	FEMALES.
12	under 10	3	9
14	„ 20	4	10
4	„ 30	2	2
9	„ 40	5	4
7	„ 50	6	1
6	„ 50 and above ..	6	0
—		—	—
52		26	26

The causes in the 26 cases *under* twenty were:

7 Congenital.

5 Dentition.

4 Weak constitution.

3 Hereditary predisposition.

2 Exposure to cold and dampness. In one case the patient (when a year old) fell asleep in wet clothing, having been previously exposed to a heavy rain. Paralysis of one leg, from the hip down, was visible the next morning.

2 Caries of the vertebræ.

1 Myelitis.

1 External injury. A pull of the child's shoulder by the nurse caused all the muscles round the joint to waste completely, and the joint was only covered by the skin.

1 Tænia and terebinthina. A girl of twelve years, who was believed to suffer from tapeworm, and for the expulsion of which large doses of terebinthina had been prescribed, lost, after having taken this medicine, the use of the right arm and left leg.

The causes in 26 cases above twenty years were:

7 Apoplexy.

The forms of the paralytic affections in those 52 cases, with regard to sex and age, are shown in this table.

		MALE.		FEMALE.		UNDER 20.		OVER 20.
4	..	General paralysis	3	1	1 3
16	..	Hemiplegia	9	7	5 11
11	..	Paraplegia	8	3	4 7
13	..	Paralysis of one lower extremity .	3	10	10 3
3	..	Paralysis of one arm	1	2	1 2
2	..	Paralysis of the respiratory muscles (chicken breast)	1	1	2 0
2	..	Paralysis of one side of the neck (wry neck)	1	1	2 0
1	..	Paralysis of the external muscles of both thighs (inversion of the knees)	0	1	1 0
—			—		—		—	
52			26		26		26	26

Twenty-seven cases were combined with curvatures of the spine.

Lateral curvature occurred 17 times.

Posterior „ „ 8 „

Anterior „ „ 2 „

—
27 „

Of these, seventeen occurred in persons under twenty, and only ten in persons above twenty; the combinations of curvatures with the different paralytic affections are shown in the following table.

		SCOLIOSIS.		KYPHOSIS.		LORDOSIS.
Hemiplegia	8	3	0	
Paraplegia	3	2	0	
General paralysis	1	0	0	
Paralysis of one leg	2	1	2	
„ of the respiratory muscles	1	0	0	
Paralytic inversion of the knee ..	0	1	0	
„ wry neck	2	0	0	
	—		—		—	
	17		7		2	

Of the fifty-two cases forty-four have been treated and eight examined; twelve out of the forty-four have been seen only

from three to ten times, and form the first class in the following table, which shows the general results of my treatment. The second class consists of those cases which have been under treatment for a longer time.

RESULT OF TREATMENT IN FORTY-FOUR CASES.

Class.	Number.	Cured or very much improved.	Improved.	Slightly im- proved.	Not benefited.
I.	12 1 2 8 1
II.	32 17 12 3
	—	—	—	—	—
	44 18 14 11 1

The results of the treatment in the second class, in which alone a fair trial was given to the means applied, is in so far satisfactory that *all* have improved, although the improvement was only slight in three cases, greater in twelve, and very great (including in six cases a perfect cure) in seventeen cases.

The special hygienic treatment pursued in the various paralytic affections is mentioned in some of the following cases, and I believe it unnecessary to enter here into the details of the description of the various medio-gymnastic manipulations and movements prescribed in the individual cases, because those who are more interested in this part of the treatment will find all they wish in my *Handbook on the Movement Cure*, and in *The Cure of Chronic Diseases by Movements*.

GENERAL PARALYSIS.

CASE I.—*Congenital General Paralysis.*

Master T——, fair and pale, strumous, although twelve years old had only the trunk of a boy of his age, while his flabby and thin arms and legs are retarded in their development, and not larger than those of a boy of five or six years. The spine does not give any support to the body, and was in this respect similar to that of a new-born baby, and did not show the natural curve. While sitting he is supported by pillows; his movements of the head and of all the limbs are very slow, and of a very small range; the skin dry; his mental capacities unim-

paired. I recommended the mother to do various manipulations on his arms and legs, to place him in natural positions while lying or reclining, to assist him in the few movements which he is able to do, to wash him with yellow soap every evening, and to rub him very well all over the body.

When this boy was seen a second time, after an interval of two months, his limbs were less flabby, and the movements a little quicker, and I advised the mother to do some combined flexions* and extensions on the limbs, and to fix a pulley with a slight weight proportionate to the power of his arms and legs, as I wished to induce him to exert also the legs. One month later, at the third visit, the mother mentioned that she had increased the weight by two or three pounds, that the boy began to exert himself much more, that he is delighted in using his limbs very frequently, and that he had almost entirely neglected his reading since his attention was directed to the movements which were done on the pulley. Since that time I have not heard of this boy.

CASE II.—*General Paralysis with prevalent affection of the arms and hands.*

Mr.—, 33 years old, banker, was sent to me by Drs. Madden and Kidd, and was examined in December, 1857. His paralysis began several years ago; although not able to give an exact account of the cause which produced his present state, the symptoms proved that some disease in the brain preceded. When standing the feet are placed apart to get a larger basis and more balance of the body; the head bent forward; the right eye amaurotic; he stoops very much; is round-shouldered; the chest flat and contracted; both elbows bent, the hands hanging motionless from the wrist; there is a considerable lateral curvature of the spine; the knees are slightly contracted, and the gait, when walking, unsteady; no sensation in the forearms and hands, and very slight in the upper arms; these limbs very flabby; the forearms, hands and feet less warm than

* Combined movements are those in which some resistance is offered either by the patient or by the person acting on the patient.

the rest of the body. Besides the medicinal allopathic and homœopathic treatment, he was for months shampooed, and had also used Mahomet's baths in Brighton without any improvement—his spirits were rather depressed.

The treatment in this case was first directed to the enlargement of the chest, and to the improvement of the curvature of the spine, because I wished to improve the circulation, and to produce more warmth in his feet and hands. The reason for my attention being first directed to the spine was to give a stronger point of support both to his legs and arms. Respiratory movements in a sitting and half-lying position, various trunk flexions and twisting in stride-sitting and riding-positions, fulling, kneading and stroking movements on the arms and feet, produced in the course of a few weeks some improvement with regard to the chest and spine. In the morning and evening the back was sponged and rubbed, first with tepid, later with cold water, in a longitudinal direction, from above, downwards; the hands and feet were also manipulated after the sponging. The treatment being interrupted, after an interval of a few months was resumed a second time for about six weeks, and, after another interval of several months, a third time for six weeks. He was seen three or four times a week.

The result of the treatment was that the disease did not make any further progress; he improved so far as to be able to walk upright; his chest is expanded to the natural proportions; the curvature is considerably improved; his friends find him more erect; sensation in the forearms, and partly in the hands, is restored; he is able to grasp things, to eat and drink without assistance, and to move his arms in all directions; and I was told by his wife that he can sign his name much better than before. In the intervals when he was not under my care he tried electricity without the least benefit, and at another time he was at Malvern, but was advised by Dr. Gully to place himself again under my treatment. His general health is also very much better, but there is one symptom which either escaped my own and the patient's attention, or which developed itself only later, viz., that the movements of the left eye are restricted to such an extent that he cannot move the eyeball outwards

beyond the mesial line of the cavity of the eye, while the movements of the amaurotic right eye are perfectly free in all directions.

It would be tedious to enter into the details of the movements applied in this case, and I will only mention that when he returned the second and third time under treatment this was directed to the increase of his powers of balancing the body in the standing position; his arms and legs were more specially acted upon, and a proof of his increased vigour in the forearms and hands was the capability of climbing, without any aid, three or four steps of a ladder fixed vertically; he also walked with very little assistance on a balancing pole raised about a foot from the floor, and had the power of hanging for twenty or thirty seconds while grasping a transverse pole.

This patient had, like so many other paralysed persons, very little perseverance—did scarcely anything for himself when not under my care—otherwise he would have gained still more. Had I seen a similar case twenty or fifteen years ago, when I was not acquainted with the hygienic means, and especially with the influence of the will, so useful in this complaint, I would not have even attempted to try any treatment, believing at that time, as so many of my colleagues do at present, that every attempt would be fruitless.

CASE III.—*General Paralysis, with constant shakings.*

This was a patient of Mr. Skey. Had suffered for ten years. The shaking was only stopped in a particular stooping position, with the legs crossed, and one elbow placed on the knee, while the head rested on the corresponding hand. Although he could scarcely raise his arms, which his servant had to stretch for him by a pull, I have induced him, after a few visits, to exert his will to such a degree, that he was able to stretch the body as well as the arms. During the voluntary actions, he did not shake. The treatment was soon interrupted, as he left for the country.

HEMIPLEGIA.

Of sixteen cases which I have mentioned in the statistic Tables (page 28), I saw *Case I.* once, and refused to begin any treatment, because he was accustomed to take 70 to 80 drops of chlorodyne every night, in order to get rest, which he could not be persuaded to give up. He was a rich man, and consequently was told by several orthodox medical men that he suffered only from rheumatism, notwithstanding that he had no distinct sensation in one hand, and could neither walk in the dark without falling, nor turn in bed. Electricity, morphia, strychnia, mesmerism, various mineral acids, and the baths of Aix-la-Chapelle, have been without any use; the spinal paralysis appeared even to progress. My candid opinion that he has paralysis, and that only the influence of the will might have some beneficial result, was not liked.

CASE II.—*Hemiplegia.*

Mrs. —, the sister of a physician, could not undergo any active treatment, because, when she tried to exert her will in order to make any active movement with the paralysed limbs, she felt a pain in the head; and as I consider such a pain contra-indicative, I advised her to use only passive movements, as long as the pain lasts. Several members of her family have had apoplectic seizures; and she awoke one morning, incapable of moving one side, without any premonitory symptom.

CASE III.—*Hemiplegia.*

A Spaniard, about 55 years old, a teacher of archery, and a drunkard, who lived in a distant suburb of London, was brought to my institution at intervals of about six weeks, and seen only eight times. He mentioned Dr. Davies as the medical gentleman who sent him to me. Apoplexy, probably the consequence of his drinking propensities, was the cause of the disease, which was of two or three years' standing. His companion was instructed to make fulling and passive rotations on all those joints of the arm and leg which permitted such an action; also,

passive flexion and extension was applied; and when he improved, he was assisted in doing these movements actively. Stimulants of any kind were forbidden, frequent washing of the body recommended, and to be much in the open air. When seen the last time, he walked about in the room alone, executed various movements with his affected arm and leg to prove that he was better, and was very loud in his praise about the manipulations and movements which have caused the diminution of the contraction in his limbs, and which have brought on the improvement, for which he was very grateful. Whether he has made any further progress since that time, I am not able to say, as I did not hear of him; but this case is at any rate an instance of the efficacy of the most simple hygienic means.

Of the other cases of hemiplegia which have been under regular treatment, six, who continued for a longer time, were either cured or very considerably improved, while the others, although very grave cases, improved also, but not to such an extent.

The four children and one youth who have been afflicted with hemiplegia, have been more benefited than the older patients, notwithstanding that the causes were in some congenital.

CASE IV.—*Congenital Hemiplegia of the right side, with Lateral Curvature of the Spine and Inversion of the Knees and Feet.*

Miss —, 7 years old, very pale, head well developed, mental capacities unimpaired, with a good memory, and very observing. The right side affected since her birth; the mother thinks that the application of instruments during her parturition has caused the paralytic affection. The head is turned and bent to the right, and inclined forward—a position caused by the great weakness of the right eye, which enables her to use more easily the good left eye, the mouth is slightly drawn to one side, and oblique; has some difficulty in speaking, as if the tongue were heavy; the muscles of the neck contracted, but more on the right side; both shoulders drawn up; the chest very

flat; the ribs very depressed; the spine affected with double lateral curvature; the right arm contracted; the right hand and fingers twisted and hanging down; both feet turned inwards; both knees contracted, with inversion of the knees, the right more contracted than the left, and scraping the floor with the toes while walking; a peculiar shuffling walk, with constant shaking of the head. She is very emaciated, and all the muscles very flabby, easily disposed to cry, and afraid to see a soldier or a doctor.

I was consulted in December, 1849, as the parents wished to place her under hydropathic treatment; but I would not comply with their wish, because, according to my opinion, that treatment was not suitable to the case. Not being acquainted at that time with Ling's scientific medical gymnastics, I therefore proposed some active movements, a change of diet, much fresh air, and some exercises with a pulley, to which a slight weight was attached. A few months later, having heard of Ling's system, but not knowing anything of its practical part, I recommended the parents to consult somebody who knew more, but notwithstanding my repeated recommendation, this was not done, because they feared that the child would suffer by seeing a new doctor, but expressed their satisfaction with the slight improvement, and requested me to continue my attendance, which I did for several years regularly during the winter months, while the most persevering mother continued with the greatest assiduity to carry out all my suggestions during the summer, when they were in the country. The child improved slowly but steadily, and the progress was arrested for weeks, and even for months, by several acute diseases, which two or three times every year appeared, under the form of an affection of the mucous membranes either of the chest or the digestive tube: hooping-cough and measles, and synocha, prevented also a quick improvement, and thus, in the course of a few days, the progress of many months was lost. During all these complaints, she was treated partly medicinally, and partly with the different applications of water at various temperatures.

The treatment in the beginning was tedious, because, before

her twelfth year, it was very difficult to fix the child's attention to the positions and movements necessary for her improvement. The residence in town produced infallibly, after a few months, a state of great languor and weakness, so that, even with the best will, she could not do what was required. She was first accustomed to lie on a soft couch, in a horizontal position, while the neck and loins were supported by small round pillows, as used in travelling coaches. She was taught to breathe deep, in regulated motions; to stretch the body, while pushing with her heels and head simultaneously; the contracted neck and limbs had then to be rubbed; single muscles had to be kneaded, and moved to and fro by another person. Having in the beginning for a short time applied leg-irons, without much benefit, the ankle, knee, and hip-joints were brought afterwards into motion by rotatory movements, flexion and extension, adduction and abduction in lying, half-lying, and stride-sitting positions. The movements were first passive, and when the joints were less stiff, the active movements were made more easy by assistance; when the strength increased, this assistance was not wanted, and she was induced to do her active exercises alone; and finally, the combined movements with resistance were used. The inversion of the knees and feet was cured partly by the movements named before, partly by leg-separation, with resistance of another person, and by leg-adduction, while she resisted in a similar way the twisting of the leg outwards, foot abduction (P.R.) and attraction (P.R.) was applied; the right arm was treated in a similar way, while several spinal movements helped to improve the spine. When able to sit in a natural position, and later, to stand, many of the combined movements were used in those positions, as well as in kneeling and hanging positions. The squinting was almost cured by inducing her, while the left eye was closed, to look at a short or long distance with the right eye only, on the fingers of another person, who changed the number of fingers which were shown to her, and which she had to name; and when the will had sufficient influence upon the movements of the right eye, she had to make slow and simultaneous movements with

both eyes, while keeping time, and stopping at the end of each action. Some of these movements of the eye are named in the "*Cure of Chronic Diseases by Movements.*"

Result of treatment.—She is now a well formed adult young lady; is straight; has the free use of her legs; is able to draw and to write with the previously-affected hand, and when in good health does not shake the head; her muscular system is well developed, and on the whole is from year to year getting stronger in every respect; the right eye is still weaker than the left; there is scarcely any squint in comparison to the previous state.

This case was the first I ever treated by movements; and I hope that many of my medical brethren will be induced to try a similar treatment with other paralysed children, for whom at present frequently nothing is done, consequently these unhappy children are left to grow up crippled and deformed, and when, at a later period, the paralytic affection is less prominent than the deformity which is its product, they are placed on the list of orthopædic victims.

CASE V.—*Hemiplegia of the right side.*

Miss —, 7 years old, was sent to my institution by Mr. Decimus Hands, of Dorset-square, who has also kindly furnished the following notes of her state, and confirms the happy result of the treatment, similar in some respects to that named in the previous case:—

"When seven years old, would not eat with the right hand, and was punished by being sent to the corner, where, after two minutes' standing, she sat down in consequence of weakness; afterwards, lameness was observed while walking, which increased very gradually till she could not stand. The paralysis in the right hand and foot crept on, and for about twelve months she was obliged to remain in a recumbent position. Now she is as hearty and active as any other child, only one of the lateral muscles of the neck is not so much developed as on the other side." These are Mr. Hands' notes.

As the general state of the child was very bad, she was sent for a few months to my Brighton institution, and her recovery

in the course of a comparatively short time, without the aid of any medicinal agent, is in a great measure due to the invigorating effects of the Brighton air, which assisted considerably the other hygienic means.

CASE VI.—*Right Hemiplegia in a slight degree.*

Miss —, 7 years old, was sent here by Dr. Mackintosh, of Torquay. The eye, arm, and leg are slightly affected; she shows much awkwardness in the movements of these limbs, and although the treatment was interrupted for a fortnight, in consequence of a cold, during which she was treated by Dr. Joseph Laurie, she returned home after three months, almost perfectly restored, and the parents have been quite satisfied with the result.

CASE VII.—*Hemiplegia in advanced age.*

General —, 65 years old, (was sent to me by Dr. Davenport,) after a residence of forty years in India, came to England, when, after some months, he had a threatening of an apoplectic seizure; about twelve months after his return to India, he had an attack of hemiplegia of the right side, which had lasted for sixteen months before he arrived in this country. His disease remained stationary, notwithstanding the medical treatment: the right arm was contracted and pulled up; his gait characteristic of hemiplegic people, and his mouth oblique and drawn to the left and upwards; he could not walk, even across the room, without assistance.

After a few months' treatment, he was able to speak more distinctly; to walk across the room without support, although the leg still made a slight circular movement before the foot was placed down. He being still afraid to walk alone, his servant was obliged to accompany him, but not to support him; the mental effort of walking unsupported was so great as to produce headache. The contracted arm was perfectly relaxed; but the hand, with the exception of being warmer, and having a more natural colour, did not improve with regard to motion, although the sensation returned, even to the fingers.

My own and Dr. Davenport's opinion was, that a morbid

process in the brain was the cause of the paralysis. A few months after he left me, the news of the Indian revolt affected him to such an extent, that he was again attacked with cerebral disease, and he died a few weeks later, having lost the power of speech. As far as I can recollect, a very serious retention of urine took place during the last thirty-six hours before his death. My reason for giving these few notes, is to show that, even where symptoms of cerebral disease are present in a patient of such advanced age, *some* improvement can be effected by simple means, for which paralysed persons are very grateful. Besides Dr. Davenport, who watched this case constantly, he was also seen by Dr. Dudgeon.

CASE VII.—*Hemiplegia with Lateral Curvature.*

Miss —, 13 years old, sent to me by Dr. Madden, became paralysed during dentition. At present the right side of the face, the spine, and the right leg, which is a full inch shorter than the left, and also retarded in its development, are mostly affected. The sole of the shoe in its whole length was raised in order to enable me to improve the spine, as the pelvis was in a constant oblique position, and thus contributed to keep up the curve. To further the nutrition of the emaciated muscles of the right side of the face, percussion and pressure on the pes anserinus were made; and in order to induce the muscles of the face to act more energetically, she had to pronounce the letters *b, p, m, v*, more or less loud, either in succession or alternately, and varied in many ways, while the left half of the mouth and lips were fixed and slightly pulled to the right, and thus prevented from participating in the pronunciation of these letters. Her face got fuller, the whole body stronger, the chest nicely developed, the spinal curvature considerably improved, the right leg was able to carry *alone* the weight of the body; when, after sixty visits to my institution, the treatment was interrupted in consequence of acute bronchitis.

CASE VIII.—*Hemiplegia.*

Captain —, 34 years old, served in India. All kind of excesses in Baccho and Venere produced apoplexy, epileptic fits,

and hemiplegia. For the last nine years he was suffering. One of his sisters having been benefited by my treatment induced him to ask my advice, for which purpose he was brought from one of the northern counties to London, although I would never have consented to his making the long journey if I had had previously the history of his case, as his state was so desperate. The present hemiplegia was not the original one, as he was previously hemiplegic on the other side; he could not do anything for himself, and one of his legs was constantly stretched in consequence of paralysis of the flexors (which seems to occur less frequently than the paralysis of the extensors); he was put to bed, dressed, fed, etc., etc., by another person, and was as helpless as a baby; when sitting he was almost doubled up, and in consequence of the loss of one eye the head was twisted, bent sideways and also backwards, so that the neck was buried between the raised shoulders; placed on his legs he could not stand. This short description of his state will convince the reader of the truth of my assertion that I would not have consented to a journey of 350 miles for the purpose of placing himself under my own or any other treatment; but as he was in town, and as the family had taken lodgings for him very near to my house, I was obliged to consent to try some treatment, without giving or having the slightest hope of any improvement. After having been with me eight or nine weeks he returned home, and engaged one of my assistants, who continued with him the prescribed manipulations and movements. The following is an exact copy of a letter, the original of which I have still in my possession, and which contains a statement of the effects produced by the treatment.

“With M——’s compliments in reply to Dr. Roth’s kind enquiries. I feel very much better than I was a twelvemonth ago, more especially in the back. I can raise myself with comparative ease with the assistance of one hand, and with facility with the aid of two hands, and can stand with such assistance in an erect position without any uneasiness in the spinal region for some minutes. I have but trifling improvement in the use of my hands. The neuralgic pain in the left arm and shoulder has nearly subsided.”

CASE IX.—*Hemiplegia.*

In this case the patient had employed for two years an Indian, who shampooed him at least four or five times every week, and still did not succeed in improving the contracted position of his paralysed arm, which was effected in the course of a few weeks by passive and very gentle rotations in the shoulder and elbow joints in the habitual contracted position of the arm, which was gradually changed so that the same movements could be done while the arm was extended.

CASE X.—*Hemiplegia with Asthma.*

Mr. J——, 35 years old, sent by Dr. Kidd, stands six feet and two or three inches high. Over work and mental anxiety was the cause of the hemiplegia. He suffers also from polypus narium and asthma. As he was living in the country he came first for one week, and later for one or two days, to town, when he and his servant were instructed to do several prescriptions of movements. The result was that about eighteen months later he was able to skate, whence he came once with a black eye as a proof of his fall, as well as of his ability to keep upright while on the ice. He improved in all respects, and sent, in May, 1857, at his expense, a poor paralysed saddler, to my institution, whose case follows.

CASE XI.—*Hemiplegia.*

Mr. ———, 40 years old, by trade a saddler, is a temperance man for the last twelve years, having previously indulged too freely in beer and gin, and was often intoxicated. He suffered in October and November, 1856, from giddiness, and lost, on the 17th November, at 4 P.M., the power of speech, and had much dizziness and pain in the head; six hours later he was bled, and the next morning he had lost the use of his right arm and leg. This poor man returned to the country considerably improved after five weeks' treatment, during which time he had also used twelve or fifteen Russian baths, which made his contracted arm and leg more lissom; his power of walking was

much increased, and he began to make use of his arm and hand before he left.

CASE XII.—*Hemiplegia with Kyphosis.*

Master J——, 17 years old, had suffered in infancy from caries of the lumbar vertebræ, which produced an ankylosed kyphosis; since that time the mouth was slightly drawn to one side, and the left arm and leg have been affected. After a treatment of a few months the weakened limbs were almost perfectly restored; he could stand on the affected leg, and hang on the previously affected arm; and, notwithstanding the posterior spinal curvature, his carriage improved considerably, and the neck elongated; the general health was improved, and he was able to be apprenticed to a farmer, and continues well.

CASE XIII.—*Hemiplegia with Lateral Curvature.*

Mrs. ——, 36 years old, was paralysed for the last eight years, probably by exposure to cold and damp. She could not raise the right arm, and she dragged the right leg. With the aid of the Russian bath, taken once a week, and the movements continued for seven or eight months, she recovered to such an extent that she can use her limbs and perform all her domestic duties; the spinal curvature was also considerably improved, and all the trunk flexions and twistings—movements impossible at the beginning of the treatment—are at present easily performed.

CASE XIV.—*Hemiplegia with Chorea and Lumbar Lateral Curvature.*

Mr. ——, 40 years old, of an herculean constitution with the exception of the head, which, in proportion to the body, appears a little smaller than it should be. He fell, when three years old, from a window which was thirty feet high, and attributes to the shock received at the time his present complaint; although he was able as a boy and youth to walk and run as well as other boys, still he was nick-named in school as the *loose-limbed boy*. He stoops very much, and the chest is flat; the

whole right side is much weaker than the left ; he is very weak in the lumbar part of the spine, and consequently has not the power of standing or sitting without constantly moving the trunk to and fro, or from forwards, backwards ; the lateral and lumbar curvature has the convexity to the left, and is combined with a posterior curve ; the head is bent forward, the eyes are turned up when looking at things or persons in front of him, a tremulous motion of the eyeballs is observed, accompanying the usual movements of the eye. Not being able to stand, he tries to lean either with the back to the wall, or with one side, and he assists himself with the elbow and forearm, which is raised so that the hand is at the height of the shoulder ; but even when leaning in the standing position the feet are placed apart, the head is always inclined forwards, and there is a constant tendency to raise the forearms, while the upper-arms and elbows are near the body. When he wishes to walk, which can be done safely only while assisted by a second person, he has no control over the quick and involuntary movements which have frequently caused very serious falls, and, indirectly, a fear of falling, which interferes with his control over the movements ; the walk is tottering, combined with an uncontrollable quickness of movement, and a considerable flexion of the trunk forwards, similar to the position of the body of persons when ascending a hill. Besides this position, an extra to and fro or pendulum movement of the body above the hips is observed, while the knees fail to stretch. The reader will thus form an idea of the peculiarity of the walk ; but when he walks near a wall, or in a passage, he will either lean laterally or totter from one side to another in order to touch the wall with the corresponding forearm ; the peculiar position of the bent forearms and the hands on a level with the shoulder, is a compensating action for the weakness of the lumbar part of the spine, and assists in lessening the swaying of the trunk above the hips, which is independent of the tottering walk.

It would be useless to give a description of the various medicines and modes of treatment which he has tried without any effect. The general health was very good, as well as the muscular development. My object in the beginning of the

treatment was to increase the power of his right hand and arm, and right leg; which was done while the patient was placed in a reclining position, so that an angle of 45 degrees is formed by the trunk and thighs; he is encouraged to place himself often in this position, which brings the head into the natural position and expands the chest, while it also straightens the spine. After a few weeks the desired effect was produced in the right arm and leg, and movements acting upon the curvature were added to his prescription, which enabled him by degrees to use his arms in a *free* sitting position, that is, without leaning the back. The to and fro movements ceased after this in the sitting position. He left me after three months, went, contrary to my advice, to one of the Malvern hydropathic institutions, and the result of the irritation produced by the too frequent application of wet sheets, douches, baths, etc., was, that he got a number of boils, which were very painful, but did not produce any further improvement. After this he returned again under my care, under which he is still.

At present he is able to stand for a few minutes *erect* without support, and even to make all arm movements in this position; the head can be kept up; his chest is as good as can be desired; the curvature disappeared, although there is a slight inclination to the right; the tremulous motions of the eyeballs have ceased; and in the sitting position he is as strong as any other person; he is able when a person is near him, *without* being assisted, to make a few paces, this short walk is more easy, and the erect position of the body and head more easily kept up, if he places the hands on the sides of the thighs; there is more control over his movements, and on the whole the quickness of his actions has diminished. To judge from what I have seen of his case, I am sure that he will still improve, but I cannot say to what extent; the great obstacle to his walking is the fear of falling, which can only be counteracted by a person or a fixed object near him, and that the left toes kick towards the right heel. On the whole there is reason to be satisfied with the results already obtained in this very complicated and grave disorder of such long standing, although the last aim of making him less dependent upon others whilst walking is not yet obtained.

PARAPLEGIA.

CASE I.—*Paraplegia Rheumatica.*

Mr. —, 36 years old, sent to me by Dr. Hamilton. Two years ago, during the superintendence of some engineering works, he was standing for some time in water, and repeatedly exposed to damp and cold; in consequence of this he lost the use of both legs, could walk only with the assistance of another person, and only when able to see his legs, as he was otherwise not aware of the position of his feet: this was also the reason that he was not able to walk in the dark. He was seen about twelve or fifteen times in the course of five weeks; during this time he had taken about eight or ten Russian baths, in which manipulation and percussion with birch twigs surrounded with leaves were made upon the legs, and steam douches have been applied locally along the whole length of both lower extremities; besides the special movements applied to increase the strength of the legs and the influence of the will upon these parts, particular attention was paid to increase the power of the lower part of the spine, which was weak although not curved. Circumstances obliged him to interrupt the treatment after the short period mentioned before, notwithstanding some improvement was visible, which is confirmed in a note received from Dr. Hamilton regarding this patient, in which the Dr. says—"the last time I saw him I thought him much improved."

CASE II.—*Paraplegia caused by Turpentine in a person suffering from Tapeworm.*

Mr. —, 39 years old, fair, has always enjoyed good health till he went to Switzerland, where he lived for some time, and suffered, or was supposed to suffer, from tænia. Various medicines have been used to dislodge the enemy without any result; when he returned to Scotland, Professor Miller in Edinburgh prescribed large doses of *turpentine*, and he attributes to this drug his present paralytic affection. He cannot walk slow because he has no power of balancing the body above the hips; when he stands the feet are placed very far apart. An American

physician, Dr. Lewis, who saw him walk while under my care, asked whether he was drunk. The power in the back and legs has diminished during the last fifteen months to such an extent that he is not able to take horse exercise. He was under Dr. Duchesne in Paris, but the *electricité localisée* was of no use. The treatment of Mr. Skey, with increased doses of rum, had also no beneficial effect.

After a treatment of ten weeks, which was interrupted after the first six weeks, he improved to such a degree in his general vigour, as well as in the affected parts, that he was able to be on horseback in Hyde Park daily, for one hour to one hour and a half. While with me he had no objection to be seen by medical men, when undergoing the treatment by movements, and thus Dr. Davenport, and my pupil, Dr. Taylor, had an opportunity of watching the progress of the case.

CASE III.—*Paraplegia caused by mental anxiety.*

Mr. —, a commercial gentleman, 56 years old, was always in good health. He lost the use of both legs in consequence of mental anxiety, and fear that his affairs were going wrong. The thigh on one side, and the leg on the other side, were more affected than the corresponding parts on the opposite side. Not being able to stay longer than a week with me, he and his servant were instructed to carry out at home, as far as possible, the simple manipulations and movements prescribed; as he suffered from constipation, and was accustomed to take aperient pills, the hygienic means mentioned in this paper were adopted, and if these should fail, small quantities of the mineral waters of Marienbad-Kreuzbrunnen were ordered. A few weeks ago I was informed, in a note from his wife, that the few hygienic means have been continued since I have seen him, which is about a year ago; that he has never taken any of the aperient pills, and that he is on the whole better.

CASE IV.—*Paraplegia by mechanical injury.*

Mr. —, 34 years old, had lost the use of both legs, and of the middle and lower part of the spine, so that he could move only

with the aid of his hands, in a sitting position, on the floor. I had to examine him while on the floor; as he could not sit on a chair without stooping very much forward. My reason for giving the history of his case in his own words, is to show what treatment was pursued before applying to me:—

“In June, 1849, we were reviewed by Prince Albert on Wimbledon Common. Returning from thence, we had to pass over some broken ground. In consequence of the rush that usually takes place when a number of horses are jumping, and my making the horse I was riding leap too soon, she fell on her right side, and with my right leg under, which I could not release, owing to its being entangled with the stirrup. I threw my left leg over the saddle, and turned on to my back, when, with the assistance of some of the bystanders, I was released. I felt only the shake, and some slight bruises, mounted again, and rode to Hounslow, a distance of eight or nine miles. The next day I found I was very stiff and sore, from the shoulder to the foot. From then till May, 1851, I did duty without any inconvenience or interruption (except from gonorrhœa, contracted between the periods 1849-51, for which I was a patient in the regimental hospital about six weeks); I then began to find weakness in the back when stooping or riding. After stooping I was obliged to place my arm across my back to relieve me, and after riding was obliged to stand a few minutes before I could move off after dismounting, and the right leg would soon get tired, and the thigh ache, after being an hour in the saddle. From this time—*i.e.*, May, 1851, to December, 1852—I always found these symptoms. I then obtained leave of absence, took a passage from Kingstown to Liverpool, and from thence went by rail to Manchester and Sheffield. In crossing the Channel I caught a severe cold by exposing myself, just out of my berth, to a damp foggy atmosphere. From Sheffield I went by coach to Mansfield, where I remained a week or ten days, and arrived in London on the 10th of this month (December, 1852). On the 23rd of the same month, or thirteen days later, I began to have violent pains in the temples, and from the left side of the abdomen to the spinal column,

over the left hip. I took a dose of Cockle's pills, and not finding them relieve me, I went to a consulting surgeon, who said I was suffering from 'an affection of the kidneys, touching the spinal cord,' and treated me accordingly. My urine at this time became thick and offensive, with a bran-like appearance on the surface, and a thick mucous settlement, which adhered to the bottom of the vessel. The treatment he prescribed was different medicines, blisters, mustard-plasters, and warm fomentations. From the latter I found great relief. In about a fortnight after I had medical advice, my legs became benumbed down the outside, and gradually lost power, till I was unable to stand. I also lost all power of making water, and was compelled to have it drawn off with a catheter. In another fortnight or three weeks I began to recover, and was able to walk about the house, which lasted about a week, when I was taken worse, lost the use of my legs entirely—had no feeling in them; motions passed without my knowledge, and could not move myself in bed without assistance. Pains took me between the shoulders, and I could not bear to lay long without a pillow being shook up and placed under them. My feet and legs swelled if they hung down, and pitted upon pressure; occasional shiverings and spasms; the legs would sometimes jump up without my being able to prevent them, were quite cold, and dead to all feeling.

“In March, 1853, my back became sore and sloughed, and as that healed I got better, and have done so slowly until the present time. After I was taken the second time, I was treated for a spinal injury. I complained so frequently of my back, that the surgeon examined it with his fingers, and found very great tenderness on the part pointed out to you when I consulted you. He then said my back had been injured, which was also the opinion of the surgeon sent by the Director-General to examine and report my case before I was discharged from the service. The treatment pursued from that time till the present was counter-irritants and tonic medicines. In September of the same year I was advised by the doctor to try my native air (Gloucestershire), where I continued to get stronger, and was able to move about a little upon crutches, by dragging the right

leg, or, rather, swinging it. I took iron mixtures until the next year (1854), when I was induced to try galvanism, with a liniment to rub into the affected part, that produced eruptions—and quinine internally. This did not benefit me, and I then decided to try the Gloster Infirmary, Major Somerset having procured my admission (February, 1855), where I remained fifteen months, taking medicine, principally *mixt. ferri.* and *ol. jecoris aselli*, with leeches, blisters, applications of *iodine* with a pencil, and an issue between the shoulders, which was open for eight or nine months, and only closed upon my leaving in March, 1856. The whole time I was there I was in bed, with the exception of a few weeks outside with my clothes on; and the only benefit when I left, was better feeling in the legs as regards strength. I was weaker when I left than when I went in; could not stand so well; and I found the issue had so weakened me, that if I turned my head suddenly, it gave me pain about the part. After leaving the hospital I was in lodgings in Gloster, taking fresh air occasionally in a chair, rubbing ointment into the back composed of Hydriod. potass. and Iodine, and the internal use of Sarsaparilla comp.”

To make any commentary on the history of this unfortunate case is useless; but unhappily such treatment is often resorted to, and this explains why the back of many paralysed persons is like a battle-field, where moxas, leeches, blisters, ointments of tartar emetic, setons and cupping instruments have left the vestiges of their ravaging effects.

Pains in the kidneys, accompanied by scalding when passing water, and which have been produced either by the fall or the gonorrhœa and Turpentine which he has taken in large doses, have been relieved by compresses, baths, and a few drops of the first dilution of *Tinctura cantharidis*: the same dose and dilution of *Nux vomica* was given in the beginning for the removal of the constipation, and with the exception of these two medicines I do not recollect to have prescribed any other.

The Russian bath, the movements, and the change of diet have improved this young man to such a degree that he was able to stand while dressing, and to walk across the room with the aid of his crutches; the shaking movements of the legs have

ceased, the legs can be moved, and, since the first Russian bath, they have recovered their natural temperature, and retained it since; the curvature is considerably better; the power in the spine is increased to such an extent that he is able to raise his arms even while standing. This was his state when circumstances prevented him from continuing the hygienic treatment, during which he was seen by several of my colleagues.

CASE V.—*Paraplegia with Kyphosis caused by caries of the vertebræ.*

Master —, 17 years old, son of a confectioner, was brought to me, in Brighton, encased in one of those spinal machines which I have mentioned, and as Dr. Davenport was by chance with me, he was examined in his presence. A course of Silicea, Calcarea, and Sulphur, horizontal position and perfect rest of the spine, longitudinal and lateral stroking along and on both sides of the spine, without touching the painful and affected part, daily washing and soaping of the body, and active exercise with the arms while the window was constantly open, were the principal means recommended. The patient was afterwards visited three or four times, and I did not hear anything more of him till about eight or ten months later I received a sumptuous cake of at least three or four feet in circumference, and a letter expressing his gratitude for his recovery, attributing it to the use of the means I have mentioned, which had been continued up to that time. The doctor who was present at the first examination was also a witness of the dissection of the cake.

CASE VI.—*Paraplegia with prevalent rigidity.*

Mr. —, 45 years old, sent to me by Dr. Hilbers, suffered from disease of the spinal chord, which had produced paraplegia creeping on to the abdomen and chest; rigidity of the lower limbs, of the abdominal muscles, and even of the lateral respiratory muscles, was prevalent, and similar in character to the muscular rigidity produced by Strychnine, which, according to his own

opinion, the patient had not taken in large quantities, and not for a long time. Morphine, moxas, blisters, and many other medicines, and the water cure, have not arrested the progress of the disease. Having lost, also, sensation in the legs and part of the body, his position was changed after a certain time by his servant during the day as well as during the night, because he suffered from severe jerking pains, which, especially during the night, produced constriction across the stomach and chest; only the head and upper extremities remained under his control. During the five visits which I paid to this patient the necessary instruction was given to the attendant for making some manipulations, with the object of improving the circulation in the skin and legs, of soothing the jerking pains, and of lessening the rigidity of the muscles and joints. He liked the manipulations, and as he could bear them very well I wished to make a step forward, and to induce him to make more use of the arms, in order to enlarge the chest, and to counteract the jerking pains; he did not complain of any pain when, for the first time, he made, in a lying position, systematically, a few of the most elementary movements of the head and arms; he thought that the following night the pains were more intense in consequence of the slight exertions he had made, and this induced him to relinquish the movements for the present. I was inclined to attribute the increase of his jerking pain to a few doses of Strychnine, which, although in very small quantities, were prescribed without my consent.

PARALYSIS OF ONE LIMB.

CASE I.—*Paralysis of the left arm caused by Meningitis.*

Miss —, 20 years old, had lost, five years ago, the use of the left arm, in consequence of meningitis, during which disease she was attended by Dr. Dudgeon, who advised her to consult me three years ago; but she, as well as her mother, believing that it was useless to attempt any treatment for the restoration of a paralysed limb, did not follow the doctor's advice. When I saw her the first time she carried the arm in a sling, as she has done for five years; the size and length of the arm and

hand did not differ from that of the other arm, only the fingers were a little thinner than those of the right hand; the whole arm was flabby; the temperature, especially of the hand, lower than in the natural state; all these parts are pale, and sensations lost in them. She is not able to grasp or to lift anything, neither light nor heavy objects, with an even or uneven surface, and the limb is useless.

The treatment was first directed to increase the power of the left side of the trunk and of the muscles of the left shoulder, in order to obtain a firm point of support for the movements of the arms; when this was obtained she was assisted in some movements acting on the shoulder joint, and by degrees in all movements of the arm, hand, and fingers. After the first thirty visits to my institution some improvement was visible; she was under treatment three times a week, afterwards only twice, and lately only once.

The result is that she has the perfect use of the whole limb to the tips of the fingers; she can lift heavy weights, can hang on her arms, and, with regard to the control over, and the power of movement, everything which is desirable is obtained; the sensation returned very gradually, stopped at the wrist for some time, and is at present restored all over the arm to the second joint of the fingers on the back of the hand, but not yet on the inner surface of the hand. As the will has no influence over the sensation, I am at present applying magneto-electricity for the removal of the last symptom, but am not yet able to judge whether I shall succeed; should I, however, prove unsuccessful, the patient and her family are quite satisfied with the perfect recovery of the voluntary movements of the arm, which proves now a very useful limb, being as strong, warm, and well-coloured as the other arm, and Dr. Dudgeon has repeatedly expressed his satisfaction with the result.

CASS II.—*Paralysis of the right arm by mechanical injury.*

The patient, whose certificate for wounds and hurts follows, was sent to me by the late Mr. De Michele.

“ CERTIFICATE FOR WOUNDS AND HURTS.

“ These are to certify the Right Honorable the Lords Commissioners of the Admiralty that George Young (quality), able seaman, was wounded on board Her Majesty’s ship ‘ Brilliant,’ by having the little finger of the right hand and part of the soft parts surrounding its metacarpal bone blown away, and the bone so comminuted as to require its removal ; also the anterior aspects of both forearms burned by the exploding of a gun which he was loading, on the 30th day of May, 1857, being then actually upon Her Majesty’s service, in firing a salute. (Aged 26.)

“ Dated the 2nd of July, 1857.

(Here follow the Signatures.)

“ *Note.*—These certificates given to such men only as having received wounds or hurts in the service are thereby rendered incapable of continuing in the service of the ship, &c.”

His arm is hanging down lifeless ; and is from the shoulder-joint downwards, in its whole length, emaciated, flabby, cold ; the hand and fingers blue, livid ; the fingers show almost the forms of the bones ; he has not the slightest power of moving any part of the arm ; the sensation is not distinct, and diminished in the hand and fingers, he suffered very much from pain, for the relief of which Ignatia, first dilution, was prescribed. He was ordered to live soberly, to carry the arm, when walking, in a sling, supporting the whole forearm and hand ; when sitting or lying to have the arm in its whole length supported by a wedge-formed pillow of chaff, so that the hand should rest on the thick end ; several manipulations were pointed out to be made by his relatives, and all other necessary hygienic means named. He had called on me five or six times in the course of eight or ten weeks, and began to make an abduction and attraction of the arm ; since that time I lost sight of him for six or eight months, as he was absent in the country ; six weeks ago he returned again, but had neglected my advice regarding the position of his arm and his hand, which had presented much the same appearance as on his first visit.

At present he can make all the movements of the upper and forearm and wrist, and I observe already some traces of action in the middle finger; there is all probability that this sailor, if he perseveres in what he is ordered to do, will also recover the use of the hand and fingers, although it may last eighteen months or two years, or even longer, before a perfect cure takes place.

This case proves, also, that the use of special positions, manipulations and movements, is very important for the recovery of voluntary movements, and as soon as the first traces of these are obtained, much more is to be hoped, because the will assists afterwards in increased progression the development of the nutrition and contractility of the muscular fibres.

CASE III.—*Paralysis of the right arm and left leg, caused by tania and turpentine.*

Miss —, 15 years old, very tall for her age, pale and thin, of strumous habits, had taken, when twelve years old, large doses of *turpentine* to expel a tapeworm from which she was supposed to suffer; her mother attributes to the large doses of turpentine the loss of movement in the right arm and left leg.

When I first saw her she had but little use of the right arm; she could raise the shoulder-blade, and bend the arm in the elbow, but the hand fell with the jerk into the position in which she wished to place it. She could only advance the arm from the body a short distance; she limped with the left foot, and dragged the leg in walking; the ankle-joint was stiff. This was the only well developed case of paralysis *cruciata* which came under my observation. She was only forty times under treatment by movements, and was very considerably improved.

CASE IV.—*Paralysis of one leg after myelitis.*

Miss —, 17 years old, was sent to me by Dr. Mercey, late of Manchester. She had suffered from myelitis when twelve years old, up to which time she was well; the whole body was paralysed during the attack, but only the right leg in its whole length remained paralysed; the limb was perfectly useless, cold,

emaciated, and Dr. Merey, who has been formerly at the head of an orthopædic institution, did not succeed in improving her, either by medicines or other means; walking was only possible with the help of another person, and the aid of a stick, while twisting upon the healthy hip-joint, and swinging the diseased leg round and forwards; the spine had also suffered in consequence of the loss of power in the limb, and showed a lateral curvature.

She remained during three months under treatment and improved to such an extent that she could walk across the room without assistance; at that time I was obliged to interrupt the treatment, in consequence of a neuralgia of the left brachial nerve, which was accompanied by palpitation of the heart, and although she was, later, prevented by other circumstances from resuming the treatment, she did not fall back, but rather gained. I may mention that, at the request of Dr. Merey, Sir James Clark called on me to see this patient while under my care, and to convince himself of her progress.

CASE V.—*Paralysis of one leg caused by mental anxiety.*

Mr. —, 42 years old, apoplectic habit, florid, face flushed, eyes injected, hypochondriacal, had lost the use of one leg after the receipt of a telegraphic message informing him that he was robbed of his whole fortune, invested in various ways, but represented by shares and other documents. Although the fortune was recovered, the leg did not improve, and neither medicine nor the water cure had any beneficial effect upon it. The hygienic treatment and the movements soon increased his power, and twice during the treatment he had hypochondriac fits, fancied he would never improve, and wrote to me that he could not continue the treatment; but the next day the depression of spirits having disappeared, he came as usual to my institution, and continued till he was able to walk three miles; and as he was in Brighton he went up and down the hills with much ease, and was very glad to be able to dispense with the donkey-chaise when taking his open air exercise. I saw this patient about eight months later, and he wished again to resume

the movements; but finding him quite well, his previously affected leg as strong as the other, no congestion to the head, no injection in the eyes, and the abdominal functions normal, I refused to take him under treatment, but recommended him to observe, as strictly as he has done hitherto, my instructions with regard to his diet, exercise in the open air, daily sponging, and abstinence from spirituous liquors, as his habits predispose him to apoplexy, and consequently to paralytic seizures, which can be more easily prevented than cured.

CASE VI.—*Paralysis of the left leg, with lateral curvature.*

Miss ———, 15 years old, a pupil teacher, sent to me by Dr. Madden, lost the use of her left leg when cutting her first tooth; was under Dr. King's treatment for six months, and under Mr. John Lawrence for eighteen months, and both said that she suffered from spinal disease. From that time she went on without any advice, and began when twelve years old to feel great pain in the back.

She was first seen by me in April of this year; she was fair and pale, very weak, had great pain in the lumbar part of the spine, the lateral curvature considerable, the chest very flat and sunken in, the left leg drags along, and cannot be lifted. During the first six weeks she was placed in a horizontal position, and as much rest as possible was recommended; in this resting position loin stroking, kneading, fulling and gentle pressure on the paralysed limb were made daily twice for fifteen or twenty minutes; daily washing and rubbing the whole body, constant ventilation of the room in which she was confined, and as she was in Brighton under my care, lying in an invalid chair for a few hours daily on the beach, were prescribed. She did in a lying position the movements of the head known as head turning and head side flexions, flexion and extension movements of the arms, upwards, outwards and downwards, active arm rotation in horizontal direction, and also from forwards, up, out, and down, and respiratory movements. My object in recommending these movements was to obtain an enlargement of the chest and a diminution of the contraction in the muscles

of the throat, neck, shoulders and chest, and to improve the circulation by a more vigorous action in the lungs.

After two months I was able to progress with the treatment, as the severe pain in the side and back had perfectly subsided during the last fortnight, and, with the aid of several movements acting specially on the spine and leg, she was soon able to walk with the assistance of two sticks, and at present, after thirty visits to my institution, she is able to stand on the paralysed leg and to walk upright. Her whole appearance is changed, the general state of health improved, and a degree of energy in her movements and actions produced which she had never possessed. Dr. Madden, who has seen her lately in my house, was much pleased with the progress she has already made, and which, I hope, will still considerably increase.

CASE VII.—*Paralysis of the left leg with lateral curvature and talipes.*

Miss —, 13 year old, the daughter of a medical gentleman in India, had lost the use of one leg during dentition ; the foot is retarded in its development, but the length of the limb was only apparently diminished, which induced several eminent surgeons, who are at the head of the profession, to recommend a high-heeled shoe ; but as their advice was not more beneficial than the plasters and rubbing of a known rubber in Brighton, the mother placed her under the medico-gymnastic treatment. The case was in many respects similar to the previous, and also here the general improvement in health and strength, the diminution of lateral curvature, and increased power of the leg were soon visible. She is able to walk much longer, although with a slight limp, and can, while standing on the paralysed leg only, make all arm movements, and is also able to walk on a balancing pole and move her arms in all directions, which is a proof of the improvement of the spine, as well as of the leg.

PARALYTIC WRY-NECK WITH LATERAL CURVATURE.

Master —, 13 years old, sent to my institution by Dr. Lowder, of Ryde, suffered from paralysis of the sterno-

cleido-mastoideus, in consequence of which the head was turned to one side, and considerably bent obliquely forward; this anomalous position produced a compensating lateral curvature. Besides a hereditary predisposition I could not ascertain a cause, but was told that the complaint had been gradually developed till it attained the present high degree of deformity.

The boy was placed several times a day, for fifteen or twenty minutes, in a horizontal position, with some support under the head; on the paralysed muscles tapping and percussion was done, and on the healthy and contracted muscles kneading, pulling and stroking; gentle, passive rotation and pulling of the head, while the trunk and shoulders were fixed, and movements have been used to diminish the stiffness, contraction and rigidity of the neck, and such as bring the shoulders down; the flexion of the head was for a moment still increased, in order to produce some change in the rigid, contracted muscles, and then the patient was encouraged to stretch the head in the opposite direction, and was assisted during his endeavour to execute the movement. As his power of moving the head in various directions increased, he was placed in other positions while the movements were done, and by degrees I was also able to act upon his spine, and in the course of three months he improved very much; the flexion of the head had entirely disappeared, but the head was still turned, although considerably less, when the treatment was interrupted, as his family left town. Those who have witnessed the treatment by stiff padded collars, or seen the danger accompanying tenotomy of the muscles of the neck, will easily be able to judge how much more rational it is to make use of these hygienic means, which, although increasing but slowly the power of the affected muscles, restore with more certainty the deformed part.

PARALYSIS OF THE RESPIRATORY MUSCLES—CHICKEN-BREAST WITH LATERAL CURVATURE.

Miss ———, 8 years old, was sent to me by Dr. Madden. In the first four or five years of her life she was fed, according to her mother's expression, by the doctors of the old school, on

Mercury, aperients, Iodine, etc., and owes her improved state of health to the abandonment of those drugs and to homœopathy. The child is pale, fair, and listless, the head sinks down, the spine is laterally curved; she has no appetite, does not walk but drags along the room; the serrati and pectoral muscles flabby, and both sides of the chest flat and converging to the triangular form, with the cartilages connecting the right rib with the sternum very pointed, forming what is commonly called chicken-breast; her arms seem like her face, bloodless, and when the arms are stretched the forearms appear almost to drop down at the elbow joints; hands and feet cold.

She had the best air in Brighton, good and wholesome food—consequently nothing was to be changed in this respect; after twenty visits to my institution she was visibly changing for the better, but at present, when I have seen her about thirty-six times during three months, she is completely changed: the previously listless, quiet child, is at present a noisy one, sometimes even too noisy; she is cheerful and full of fun; the appetite perfect; climbing on ladders, knotted ropes, and rope ladders is her delight; the form of her chest is very much improved; the circulation normal; the muscles of the arms and chest getting much firmer every week.

The movements in this case were, in the beginning, directed principally to the improvement of the strength in the extremities; flexion, extension and rotation movements have been done on the different joints, later, trunk twisting and trunk stride flexions in stride, sitting, and long sitting positions; double arm and forearm flexion (G.R.), and extension (P.R.), in various positions; climbing and hanging movements; hip twisting in span-hanging and many other similar movements, besides several respiratory movements; these are the principal species of exercises used in this case, and with the best result.

PARALYTIC INVERSION OF THE KNEES, WITH LORDOSIS.

Miss —, 16 years old, was probably since childhood affected in a slight degree with a paralytic affection of the

legs, which produced the turning in of the knees and an anterior lumbar curvature, weakness of the ankles and inversion of the feet ; round and high shoulders, with a flat chest, were also present. The mother was not aware of the actual state of the deformity, but considered her only very weak, and sent her for two years into the country, which improved her general health very much. As the mother objected to her being placed in a machine similar to that I have described when speaking of the orthopædic victim (p. 21), I was consulted, and although I could not give any hope of a perfect cure, she was, however, placed under the treatment by movements, which, in many respects, were similar to those I have named in the Case IV. of congenital hemiplegia (p. 38), with respect to the treatment of the inversion of the knees.

The improvement was considerable, although she was seen only thirty-six times ; her whole figure was elongated ; the curve in the spine better ; the knees are turned out, but they are still three inches distant from each other when standing upright with the feet placed in a right angle ; but this distance will diminish when the treatment is continued.

A FEW NOTES ABOUT THE PREVENTION OF SOME PREDISPOSING CAUSES OF PARALYSIS IN CHILDREN.

Every mother should pay much attention to her own health, from the moment she is aware that she is giving life to another organism. Neglect of her own health is a frequent cause of constitutional weakness in her offspring ; and thus the predisposition for congenital paralysis originates.

Paralytic affections caused by fits during dentition, by abdominal irritation, worms, and congestion to the head, might to a great extent be prevented, if mothers could be practically instructed to pay more attention to the judicious management of their infants and children, with regard to the quality and quantity of food, as well as to its regular administration ; to ventilation, dress, and in general to their physical development. Whenever the first signs of any indisposition of an infant or child are observed, they should be attended to and removed,

either by a change of their usual regimen, or, if hygienic means are not sufficient, by the suitable medicines.

Exposure to damp and cold must be avoided, because damp beds, damp linen, or dresses, or the sitting on damp grass predispose to rheumatic paralysis. To diminish the sensibility of infants and children to the injurious influences of damp and cold, they should be accustomed to be well washed with soap and tepid or cold water as soon as they rise.

Children whose mental faculties are naturally too much developed in proportion to their age, must have much play and game, to counteract the prevalence of the cerebral development; they must not be kept close to their books, as the external impressions conveyed through their senses are quite sufficient to give them, without any special attention, the necessary information, which other less mentally developed children acquire only with difficulty.

“Here I would raise my voice against that pernicious system of brain-work, miscalled infantile education. It ignores, or is ignorant of, the laws both of the physical and functional development of this most important organ. It neglects the sequences under which its various faculties appear. It has little regard to the laws under which the senses educate the powers of the brain. It either crushes the imagination, so active in childhood, by a premature development of the reflective faculties, or it overwhelms a faculty, which requires no stimulus, by a sort of artificial expedients. Hence the greater development of early madness; hence the instances of disproportioned faculties—the wayward wits—the unbalanced conduct—the physical exhaustion and cramped development of the body, the result of the contentions of inharmonious and disordered powers and passions. The chapter on the early training of childhood is yet to be written; and even were it at hand, I believe that the errors of the present system are so methodised and enrooted, so many prizes are offered for treading its paths, that few would listen to, and fewer practice its precepts. One of the most thoughtful minds of our time, Sir B. Brodie, in pointing out some of its vices, has all but preferred having the brain

fallow to storing it, as it now is stored, in infancy and childhood."—(Dr. Ferguson, in his preface to Goode's Essays on Diseases of Women and Children.)

Onanism is one of the frequent predisposing causes of paralysis in later years; and this vice is practised to a fearful extent, in public as well as in private schools. I remember a paralysed patient who confessed that, in the school where he was brought up, one of the tutors actually encouraged the boys in this bad practice, which is also not unfrequent amongst girls and adult unmarried females. I had several proofs that nurses and servants teach infants and children to play with the private parts, in order to make the noisy children quiet. This habit of touching these parts is often the inducement to the bad practice. Medical men who inquire into the causes of paralysis, will confirm my statements regarding this vice.

PREVENTION OF PARALYSIS IN ADULT PERSONS.

This depends upon the diminution of the causes producing the various diseases I have named, and which frequently precede paralysis. Whenever mental anxiety, overwork, or excesses of any kind, especially in *Baccho et Venere*, produce giddiness, fretfulness, loss of the usually good memory, hesitation in speech, general lassitude, sensation of dragging in the shoulders, unsteady walk, twitching and numbness in the limbs, tingling in the fingers and toes, sensation of pins and needles in various parts of the body, and similar symptoms, often preceding paralysis, a systematic hygienic treatment will frequently prove beneficial; but it is absolutely necessary that the injurious influences should be removed as soon as possible. Change of occupation and of surrounding scenery will contribute to arrest the disease.

About two years ago I had a lady under treatment who, after having lost two children by diphtheria, was herself severely attacked by this disease, from which she gradually recovered. A short time afterwards, being still very much depressed by her loss, she began to feel numbness in the fingers, and weakness in the feet and legs; and once or twice she fell down. After a treatment of three weeks she had lost

the threatening symptoms. Besides a few Russian baths, combined movements on all the limbs were applied, with the view of producing a derivative effect from the nervous central organs, and increasing the circulation in the capillaries all over the skin, and the innervation in the muscles of the extremities.

In several cases of threatening paralysis, caused by mental anxiety, too much bodily or mental work, spinal irritation, congestion, and other affections of the spinal cord, the hygienic means proved useful ; although in some cases the treatment lasted a long time before the perfect use of the limbs, and of the muscles of the trunk, was restored.

The principal rule is to remove the injurious influences, and to apply the suitable means, as soon as the first symptoms show themselves. Every delay is here dangerous, although the patient does not believe this to be the case, and consequently loses the precious time, when there is still a chance of preventing a paralytic affection, which is always easier than its cure.

THE MOVEMENT-CURE;

OR

RATIONAL MEDICAL GYMNASTICS.

“At any rate we have long been convinced, and have long acted on the conviction—we humbly believe with unusual success—THAT BODILY EXERCISE IS ONE OF THE MOST IMPORTANT MEANS IN THE CURE OF NEARLY ALL CHRONIC DISEASES, and that it and proper diet and bathing, with a *modicum* of the simplest medicaments, will slowly yet surely restore lost health in thousands of cases, where the ordinary routine of heroic-medication, such as prevails so extensively in England, will not only fail to cure, but inevitably augment the malady.”
—*British and Foreign Medical Review*, vol. 20 (*Sir John Forbes*).

HAVING repeatedly mentioned that the scientific application of Movements forms an important part of the hygienic treatment of paralysis, paralytic deformities, and of many other chronic diseases, and as few practitioners only have a correct idea of this branch of the healing art, it might not be superfluous to give a short explanation of what is commonly called the *Movement-cure*; which is also known as Kinesitherapy, Kinesiatrie, and Swedish Medical Gymnastics.

Ling, the Inventor of the Movement-cure.

1776
We owe the knowledge of this system to the genius of Ling, an eminent member of the Royal Swedish Academy (born 1777, died 1839), who first introduced the curative movements now made use of, and was appointed as Director and Professor at the first institution established by the Swedish Government, in 1813, at the head of which he remained for twenty-six years. At present there are many similar institutions established, and several supported or

assisted by government ; thus, Dr. Saetherberg is at the head of an institution at Stockholm, where he sees, daily, a hundred and twenty to a hundred and thirty patients ; he is paid by the Swedish government in order to treat gratuitously a certain number of poor patients, and also to train a number of medical students in this branch of medicine. Dr. Berglind is at the head of a government institution at St. Petersburg, and ten thousand silver roubles of public money are spent for the purpose of training medical students and treating poor patients. In Germany, the number of such institutions is yearly increasing.

Difference of the Movements, according to Ling's system, from those used in Gymnastic and Orthopædic Institutions.

The Movements of Ling differ entirely from those generally used in our gymnastic and orthopædic institutions, to which they have scarcely any resemblance ; they are based on the most accurate knowledge of anatomy, physiology, and pathology, and are used either for the prevention or cure of disease ; the hygienic and educational movements are used for the strengthening of the healthy adult, and for the development of the human frame during its growth ; they combine mental with bodily development, and act through the mind on the body. The ordinary medical gymnastic treatment is applied only for the cure of malformations, not for the cure of internal complaints, as Ling's movement-cure.

The Aim of Ling's Movements.

The aim of these movements is, in the healthy state, to develop in the growing person, and to preserve in the adult, the harmony between mind and body, and to restore such a harmony in the diseased organism.

The treatment by Movements aims at an increase and development of the vital and nervous power, which can be directed to any part of the body ; it serves to draw the blood from one set of organs and bring it to others ; to develop the strength in one part and to diminish it in another ; to remove congestion from internal organs, and to make the

circulation more uniform throughout the body; to increase absorption in one part and nutrition in another; to relax the contracted muscular fibre, and to contract it when relaxed; to restore the disordered muscular, tendinous, clastic, and cellular tissues to their normal condition—in short, to substitute health for disease.

Number, Selection, and Prescription of Movements for Curative Purposes.

The number of curative movements suitable to every individual case varies from eight to twelve, which are selected according to the cause and symptoms of the disease, and according to the general state of the patient and the state of the affected part.

The movements are set down in the form of a prescription, according to certain rules, regulating the quantity and intensity of the single operations. The prescription or only some of the movements are changed, as the case requires, every fortnight or month. The patient is placed by the medical man and his assistants in the prescribed positions, which may vary for each movement, and may be lying, half-lying, sitting, kneeling, etc. The assistants (generally called *gymnasts*), instructed in the elements of anatomy and physiology, are well skilled in the movements and manipulations, and aid the patient in the execution of those which are requisite.

General Explanation of Movements.

Every movement used in a medical treatment must be a definite movement, which consists of—

- (α) The Commencing position.
- (β) The Intermediate positions.
- (γ) The Final position.

Every definite movement has a definite form, and hence must have definite points, viz. :

- 1. In which it begins.
- 2. Through which it passes.
- 3. In which it terminates.

The commencing position is obtained either by our voluntary power alone, or by the help of external mechanical means or assistants, and is that from which the movement starts.

The direction of the movement shows the *intermediate* positions, and that position to which the moved body returns to a state of rest is the *final* position.

In the active movements, with external resistance or assistance, the commencing position is where the assistant begins to be in a moving contact with the patient, or, in other words, where the latter begins to receive the assistance or resistance of the external agent acting upon him.

In the passive movements, where the body, or a part of it, is always considered as moved by an external agent, the commencing and terminating positions are where the external force begins and ceases to act.

The various Classes of Movements.

These are—1. *Active*; that is, executed by the patient alone, or with the help of the assistant. 2. *Passive*; that is, executed by the assistant only on the patient, and comprising frictions, kneading, pressure, vibration, percussion, sawing, fulling, etc. 3. Movements in which the gymnast, to the extent, and in the direction specified in the prescription, resists the patient's effort, or in which the patient resists the gymnast's effort of making a certain and determined form of movement.

In common gymnastics only active movements are known; we find none either of the second or third class of movements, although there is the greatest curative power in the two latter classes, which fact is abundantly proved by the vivifying effects and increased strength experienced by the patient himself.

Ling's Rules for the Prescription of Movements.

As the difference of age, sex, temperaments, occupations, customs, and other circumstances, do not allow us to give a fixed plan for the prescription, the following rules may serve as a guide.

1. The movements must be chosen according to the

nature and the degree of the disease, as well as to the constitution of the patient.

2. The number of movements in the single prescription is to be reduced to its *minimum*; if it is necessary there should be more movements of the extremities, their number can be larger than that of movements acting principally on the more important organs. On an average, there are not less than eight, and not more than twelve movements in a prescription, for the execution of which, with the intervals, half an hour to one hour is necessary.

3. In hernia and predisposition to it, as well as to apoplexy, in diseases of the heart, epilepsy, organic, cerebral, and spinal diseases, and many other complaints, we must be very cautious in the use of active movements.

4. The movements must follow each other in such an order, that the effect of the first may not be neutralized or weakened by the effect of the second.

5. The first prescription does not contain any, or only one or two active movements. In proportion to the improvement in health, the movements may become more active; during the convalescence more active than passive movements are used, and, finally, the cure ends with active movements.

6. General active movements, where much strain is required, must be avoided in the beginning of the treatment, because the activity of the lungs and heart are too much increased, and congestion may be produced, venous in the lungs, and arterial in the diseased parts.

7. The first and last movement in the prescription should always be the slowest.

8. It depends on the result whether a new movement shall be added, or the prescribed movements changed; a general rule is, to change the movements as soon as the patient really feels better, or as soon as he experiences different sensations from the effect of a certain movement.

9. The treatment often begins as a derivative, and the change of the prescription depends upon the effect, viz.: whether the derivation is sufficient, or whether specific or general active movements are necessary.

10. It must be mentioned expressly, whether the intensity

of the movement must be more or less strong than in an ordinary movement.

11. The rhythm must be regulated and determined according to a certain time, as in music.

12. The patients often desire the repetition of certain movements, from which they believe they feel good effects; the physician must be cautious in acceding to the patients' desires, unless he is convinced of their usefulness.

13. During the monthly functions, or, if the piles bleed, the quantity and intensity of the movements are generally diminished and the treatment sometimes suspended.

14. Every prescription is divided into three parts, each part consisting of two groups of movements; the first and last parts correspond with each other, that is, both are chiefly made up of movements for the muscles of respiration and the extremities; movements for the head, abdomen, and pelvis, are introduced in the middle.

15. The quality of every movement is designated by the words, passive, active, active with assistance, or with resistance of the patient or of the gymnast.

In the prescription the initials (P. R. or G. R.) are used for patient resists, or gymnast resists.

Ling's Rules during the Treatment by Movements.

1. One and the same movement is generally applied only once, if the treatment is daily continued; but if the movement is a repetitory one, it is repeated as often as required by its form.

2. The time, which differs from some seconds to some minutes, must be determined in every movement.

3. The prescribed movements are executed once a day, which is best done in the hours before noon; in single cases, it is advantageous, and even in some it is very essential, to repeat the whole prescription, or only a part of it, several times a day, which entirely depends on the nature of the disease and the state of the patient.

4. The patient must in no movement entirely shut the mouth and eyes, or violently retain his breathing, and if a

movement consists of two or more motions, he must again breathe between the single motions.

5. The intervals between the single movements generally last as long as the particular feeling produced by every well-employed movement has not entirely disappeared; that is, till the movement is assimilated. During these intervals, the patient should walk up and down, if he is able to do so.

6. With respect to the diet, it must be strictly observed in the same manner as in any other treatment; violent movements, too much bodily or mental exertion, and sitting up at night, etc., must be avoided. Less fatiguing positions and movements, as used in the ordinary mode of life, must not be avoided, except they do not agree with the nature of the disease.

7. The rules with respect to drink, food, dress, etc., are the usual ones. If the treatment by movements be recognised as really necessary in certain diseases, it depends upon the nature of the complaint whether it may be used alone, or in combination with a treatment by medicines. This latter is to be avoided as much as possible, if the first is sufficient; but if this is not the case, remedies are to be chosen which do not hinder the action of the movements. To this class belong, as known by experience, *Mercury*, *Iodine*, *Sulphur*, *Strychnine*, etc., which have such an influence upon the body, that during their use, and for some time afterwards, the movements lose their reproductive power, and their effect is neutralized. Bleeding or any other weakening methods are entirely incompatible with the cure by movements.

Effects of Movements applied scientifically.

With regard to the effects and indications of the movements, I would here only point out, that the principal parts besides the muscles, tendons, ligaments, joints, etc., on which we can act by movements, are the nerves and the blood.

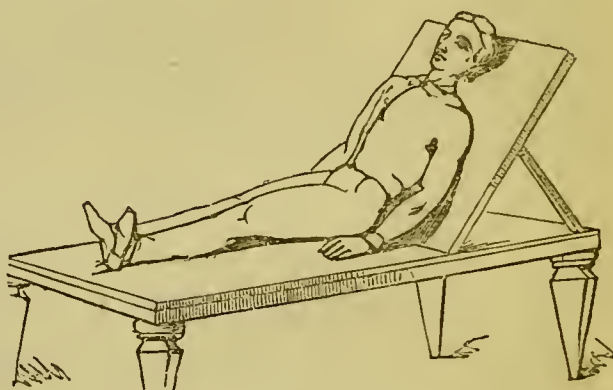
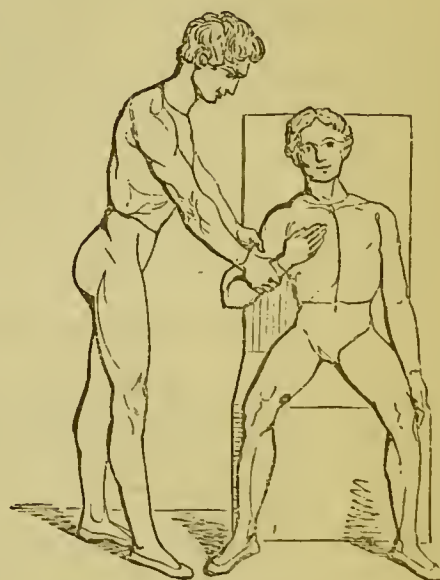
In all movements with resistance either of the patient or the gymnast, the influence of the will is increased, more nervous fluid is conveyed from the brain and medulla oblongata to the various groups of muscles which we wish to act upon, the nervous filaments conduct the nervous aura

more freely, and consequently additional stimulus is communicated to the capillary circulation, which is always slow and deficient where the patient is wanting in nervous energy. It is a prevalent idea among the profession, that movements act only upon the muscles; it is forgotten that muscular action is accompanied by increased function of the sensitive and motory nerves, by considerable changes in the arterial, venous, and capillary circulations; that the various tissues enclosed in and surrounding the muscles, as well as the points of origin and insertion of the muscles, are influenced in a greater or less degree; changes take place even in the periosteum and bones.

The *passive movements* supply a desideratum in all those cases where the will has no influence on the parts to be acted upon, or where this influence is prevented by dynamical, mechanical, or other causes. We must consider the movements as means of developing the vital reaction of the individual, of increasing nervous action in one part, and of diminishing its excess in another, as the accumulation of nervous action in one part, is always accompanied by deficiency in another; the movements are means of bringing the blood from one part to the other, without any loss of quantity to the organism; if necessary, the animal heat may be increased generally and locally, by increased capillary action, and with the best effect to the rest of the organism. The passive movements, performed on the patient by healthy persons, undoubtedly influence, not only by the local mechanical action, but also by a vital dynamical agent, transmitted from the healthy to the patient. The various movements produce peculiar sensations, as giddiness, nausea, fulness, and congestion to various organs, different pains, etc., and if continued beyond measure, there result many morbid symptoms. This is a subject which I cannot here go into, but which would tend to explain the astonishing cures performed by movements, and to which I hope more attention will be paid by the profession, as there is at present an increasing disposition to apply medical science to the prevention, among the working classes, of many diseases, resulting from their occupations, protracted injurious positions and movements, etc.

ILLUSTRATIONS OF SOME MOVEMENTS.

The following illustrations have been selected for the purpose of showing a few of the movements used in paralytic and other affections. In the beginning of the treatment the paralysed patients are generally in a lying, or half-lying position, as shown in Fig. 1. The upper part of the body of the patient is reclining, while the lower extremities are placed either horizontally, or the legs and feet are placed as in Figs. 2 and 3, which figures also show how the

Fig. 1. *Half-lying position.*Fig. 2. *Commencing position*Fig. 3. *Final position*

of
Passive Forearm Flexion.

assistant takes hold of the patient's arm (Fig. 2) in order to make a passive forearm flexion (Fig. 3).

Passive rotation of the hand.

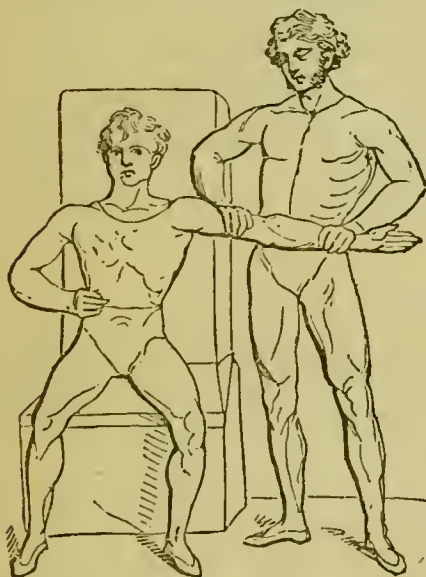
Fig. 4.

Passive rotation of the hand.

The rotatory movement is done alternately in both directions; if the patient is stronger, and begins to make an active movement, he is assisted by the gymnast in the execution of the movement.

Flexion and extension of the hand.Fig. 5. *Flexion and extension of the hand.*

The gymnast fixes the forearm of the patient below the wrist, and executes the passive movement with the other hand; the same commencing position is used when the movement is done either with resistance of the patient or the gymnast.

Reclined stride sitting, left forearm flexion (G. R.)Fig. 6. *Commencing position.*Fig. 7. *Final position.*

The patient is in a reclined position, and the feet placed apart, the gymnast fixes with his right hand the upper arm of the patient, and gently resists with his left the flexion of the forearm. Fig. 7 is also the commencing position of forearm extension (P. R.), and then Fig. 6 is the final position of that movement.

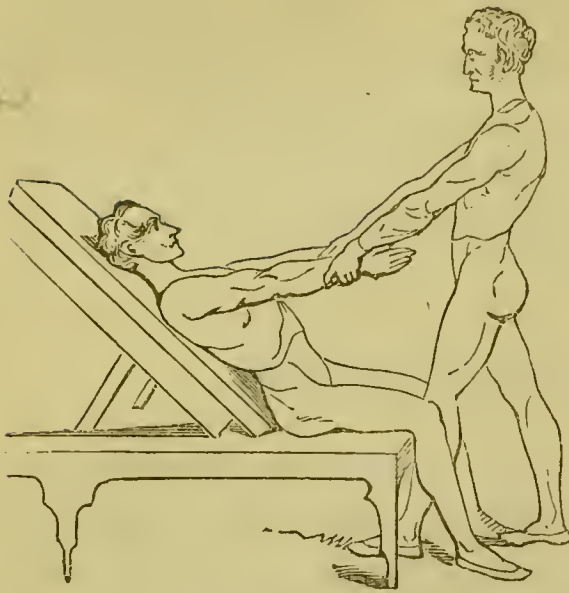
Half-lying arm extension (G. R.)

Fig. 8.
Commencing position.

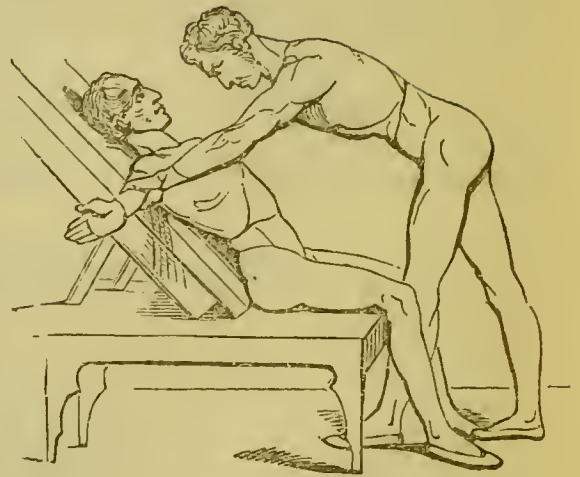


Fig. 9.
Final position.

The patient stretches his arms forward, so that the distance between them corresponds to the width of the shoulders; the assistant, standing before the patient, takes hold of his arms above the wrist, and gently resists, while the patient endeavours to bring the arms in a horizontal direction to the final position. Fig. 9. All the extensors of the whole arm, and the muscles which approach the shoulder-blades, are thus prominently brought into play, while the body itself is perfectly supported by the reclining position in the chair.

Fulling and stroking of the arm

Fig. 10. *Fulling.*

is a passive movement, in which the gymnast places the palms of both hands on the patient's arm, which he gently presses, while he moves the hands alternately forwards and backwards, and simultaneously from the upper arm down to the hand and fingers; the dotted lines indicate the to and fro direction, as the hands progress slowly from the upper part of the arms to the hands and fingers, which are thus put into a quick vibration, if the patient is per-

fectly passive. The number of to and fro movements varies from twenty to thirty, from the arm to the fingers, and the *fulling* is repeated three or four times in succession, and is followed by

Longitudinal arm-stroking,

for which purpose the gymnast places both hands, with the fingers stretched, on the highest parts of the patient's arm, and while pressing gently makes a stroking movement downwards; this is repeated three or four times in succession.



Fig. 11. *Longitudinal arm-stroking.*

Kneading.

Fig. 12 shows the position of the gymnast's left hand, kneading the supinator of the patient's left arm, which is passive and supported by the right hand of the gymnast. The tips of the fingers of the gymnast are placed in a straight line, and with the thumb move the muscle to and fro in its whole length, as the hand during the kneading action descends along the arm.

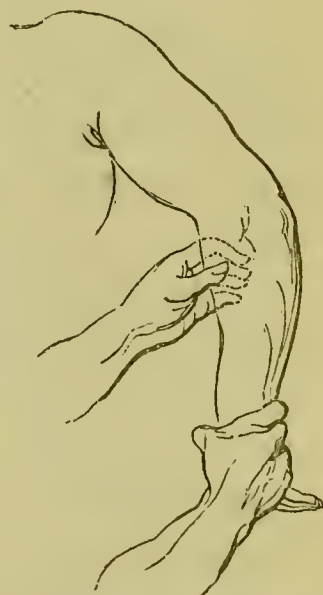


Fig. 12. *Kneading of a single muscle.*



Fig. 13. *Kneading with the palm of the hand.*

Fig. 13 is a passive manipulation, executed with both hands kneading several muscles simultaneously; the lines indicate the gradual descent of the gymnast's hands along the patient's arm.

Vibration.

(Fig. 14.) The gymnast takes hold, with both hands, of the patient's passive arm at the metacarpus, and by gently shaking his own hands, pro-

duces a vibratory movement on the patient's arm ; the vibration is done for thirty to forty seconds, and several times repeated.



Fig. 14. *Arm vibration.*

plan in which the elbow-joint is moved. The rotatory action is done either outwards and inwards alternately, or only in one direction, which depends upon the individual ease ; when the joint is more moveable, or when the patient begins to move, the gymnast assists him, and places his hands as shown in the illustration. If the movement is done with resistance the commencing position is the same. The passive rotation is done sixty to seventy times ; the rotation with resistance, three or four times.

Arm rotation.

Fig. 15 is a passive movement, in which the gymnast moves the patient's upper arm, in such a way that it describes a cone, the apex of which is in the shoulder-joint, and the basis in the elbow-joint ; the dotted ellipse shows the

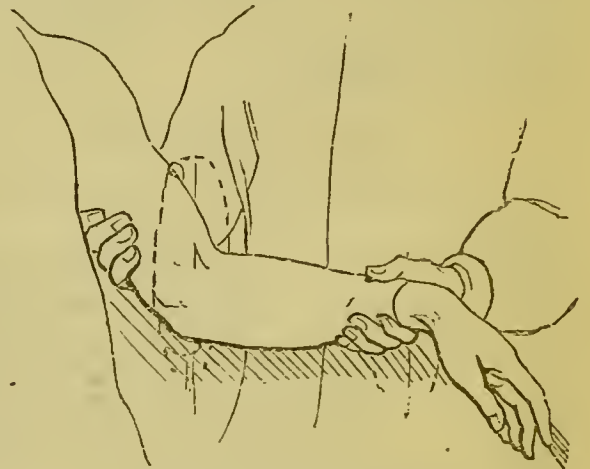


Fig. 15. *Arm rotation.*

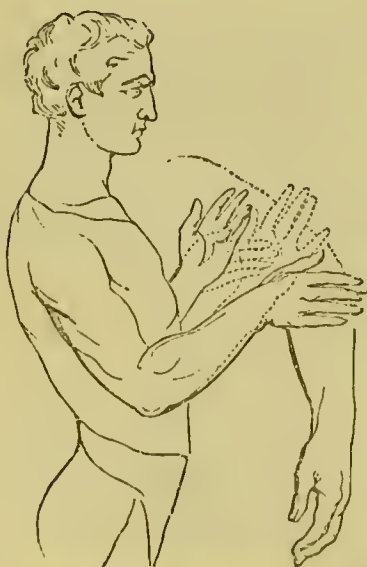


Fig. 16. *Arm chopping.*

Chopping

Is a kind of percussion, made generally with the ulnar edge of one or both hands ; in the latter case they are moved alternately up and down ; while one hand is bent towards the ulna, the other is bent towards the radius, and so on alternately, the thumbs of both hands are directed upwards, as shown in Fig. 16. The fingers are kept apart, and very flexible, while the movement is done so that at each chop the fingers elap to-

gether; the upper and forearms are kept steady and somewhat bent; the chopping is done in longitudinal lines downwards along the arm.

Foot-rotation.



Fig. 17. *Passive left foot rotation.*

The patient is in a half-lying position; his left leg, stretched only at the knee-joint, is perfectly passive at the ankle-joint, and rests on both legs of the gymnast, sitting obliquely outward before the patient.

The gymnast fixes the leg by grasping it near the ankle-joint, so as to allow a free rotatory movement in the ankle-joint, analogous to the rotation of the hand, and which he executes with his left hand placed on the toes, as shown in the figure.

The rotations of the foot are rather elliptic than circular, and are made either alternately in and outwards, or only in one direction. This passive rotation can be done sixty to seventy times in succession—it will loosen the contracted joint, increase the synovial secretion and the temperature of the foot, and thus prepare the part for the flexion and extension of the foot, illustrated by the following four figures:—

Lying right foot-extension (G. R.)



Fig. 18. *Commencing position.*

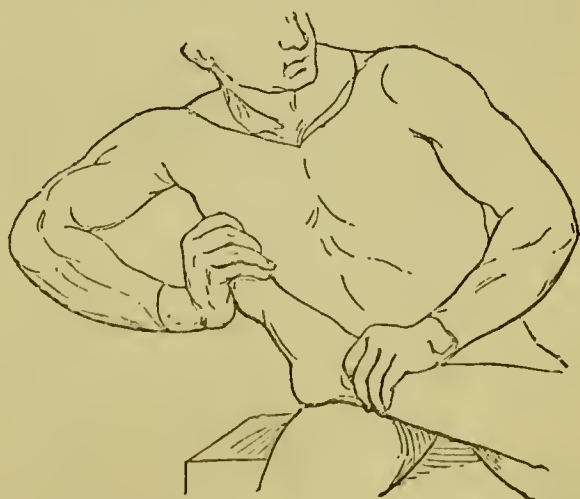


Fig. 19. *Final position.*

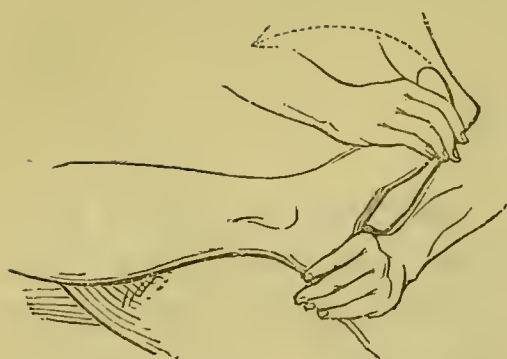
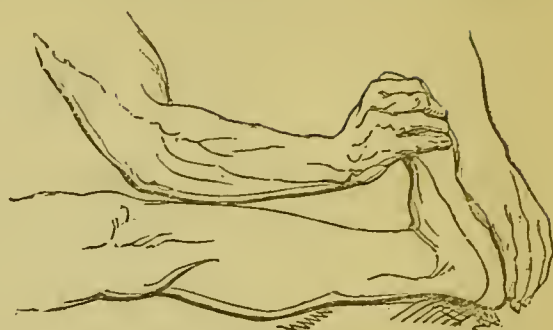
Lying foot-flexion (G. R.)Fig. 20. *Commencing position.*Fig. 21. *Final position.**Lying foot-extension (P. R.)*

Fig. 21 is the commencing, and Fig. 20 the final position of this movement.

Lying foot-flexion (P. R.)

Fig. 19 is the commencing, and Fig. 18 the final position.

The rotation, flexion, and extension of the foot are very useful in the various paralytic affections and deformities, and they are used, according to the individual ease, more or less frequently, and executed either as passive or active movements, with or without resistance.

Passive hip-rotation

Is analogous to the arm-rotation; the patient is either lying or half-lying, and his leg, which is bent at the knee, is moved by the gymnast in such a manner that the knee describes a circle, as shown by the dotted line in the engraving, which shows also how the gymnast supports the foot, while he moves the patient's leg with the other hand placed on the knee; if the hip-joint is very stiff or painful, the circle must be made so small as not to produce pain or too much strain.



Fig. 22.

Passive hip rotation.

Leg-flexion (P. R.)

Fig. 23. Commencing position

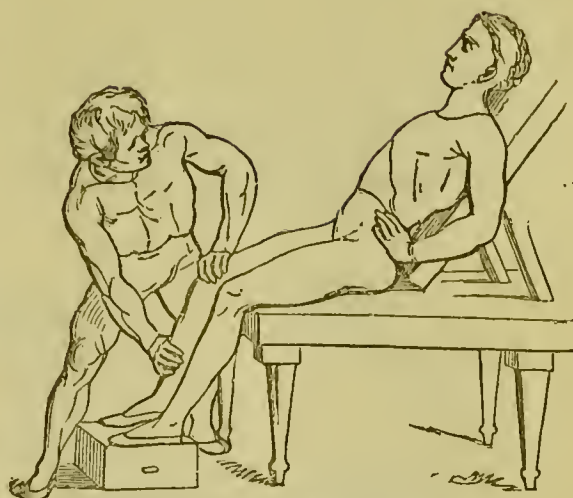


Fig. 24. Final position

Half-lying leg-flexion (P. R.)

In the commencing position the patient's leg is stretched horizontally, and the gymnast, by placing his hand on the leg as shown in the figure, gently tries to bend the leg while the patient resists, till the final position is attained.

Half-lying leg-extension (G. R.)

In this movement Fig. 24 is the commencing, and Fig. 23 the final position.



Fig. 25. Commencing position

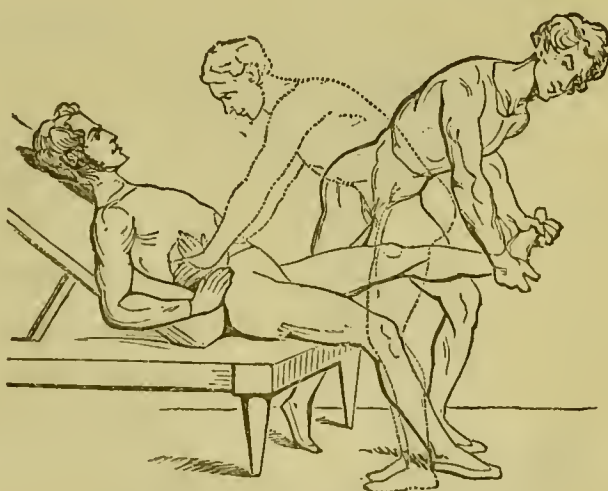


Fig. 26. Final position

of

Wing-jump half-lying leg-extension (G. R.)

Wing means that the patient has the hands on the hips, and *jump* designates the position in which his left leg is

kept in the commencing position (Fig. 25) by the gymnast, who gently resists, while the patient tries to stretch his leg, as shown in the final position (Fig. 26). This leg-extension differs very much from the previous, where only the anterior muscles of the thigh are brought into play, while in this the muscles of the trunk participate in the action.*

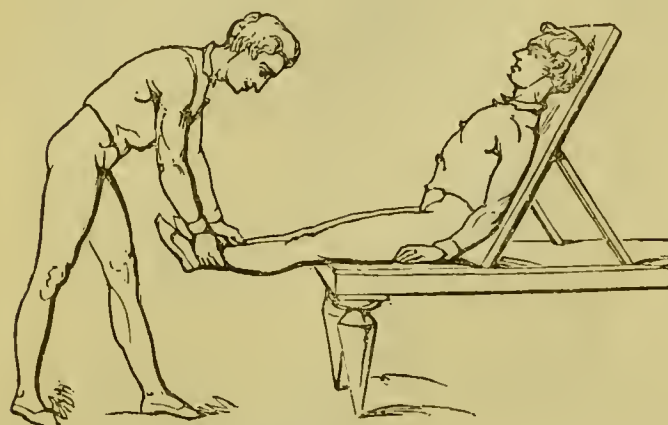


Fig. 27.

Half-lying leg-separation (G.R.).

The stretched legs of the patient are separated, while the gymnast, standing before the patient, takes hold of the feet, and *slightly resists the movement.*

The preceding few movements will suffice to give medical men an idea how a paralyzed limb can be brought in action; similar passive movements as mentioned in paralysis of the arm are also used on the leg; and I will add here only two others, different from the previous, which are used to restore sensation by acting on a single nerve, or on the peripheric nerves.

Pressure on the popliteal nerve



Fig. 28.

Is done at the back of the bent knee-joint by the gymnast placing the tips of two or three fingers on the popliteal nerve, which he presses till a slight sensation is felt. This pressure is sometimes combined with a vibration, and repeated three or four times for thirty to forty seconds.

* The dotted figure in Fig. 26 shows the position of the gymnast while executing a movement called "concentric stroking on the abdomen," and which is mentioned among the movements used to relieve constipation, page 88.

Percussion on the footFig. 29. *Foot percussion.*

Is made on the soles of the feet while covered with a shoe, either with a wooden rod, or with a roll of paper, or of oil-cloth; the gymnast strikes twenty to thirty times on the sole with the rod, and repeats the percussion three or four times. Those who laugh about the application of this kind of bastonade, I refer to the case of the late Mr. Stafford, M.P., who after having taken large doses of opium

could not be kept awake except by a similar percussion, as mentioned, at the time, in the *Lancet* and *Medical Times*.

The following engravings show how the trunk and spine can be acted upon in order to increase the strength of the muscles of the back, to remove stiffness in the lumbar vertebræ, or to cure curvatures of the spine. In the majority of paralytic affections there is a want of vigour in the spine, especially in its lumbar part; and as long as this vigour is not restored, the chest is flattened, the ribs approach each other, the respiratory functions impeded, and a deficiency in the movements of the limbs, especially of the lower extremities, observed.

Trunk twisting.

In the commencing position (Fig. 30) the patient, who sits across a chair, as on horseback, with his hands on the hips, is turned to the left; the gymnast, standing behind him, places his hands on the patient's shoulder, pulls with his left hand the left shoulder backwards, and pushes with his right hand the right shoulder forwards, in order to induce the patient to make an increased effort in the lumbar part of his spine, and thus to turn the trunk to the right, as illustrated by Fig. 31; by the position across the chair the hips of the patient are fixed; and if he is weak, his knees are fixed by a second gymnast. Such a movement is only repeated three

or four times, either to the same side, or alternately to both sides.

Wing-high-stride-sitting, trunk-twisting to the right (G. R.)



Fig. 30. *Commencing position.*



Fig. 31. *Final position.*

Wing-high-stride-sitting, trunk-twisting to the left (P. R.)

In this movement Fig. 31 would be the commencing position, and the gymnast twists the trunk of the patient to the left, who gently resists, till he is in the position of Fig. 30.

Rack-crooked-thigh-opposite-close-standing-trunk-back-flexion (G.R.)

The patient, with the feet placed near each other (*close*), leans against a horizontal padded bar with his thighs (*thigh-opposite*), the upper part of his body is bent forwards (*crooked*), his arms stretched forwards, and parallel to each other (*rack*), one gymnast standing before him takes hold of his arms, and gently resists till the trunk is bent back in the final position

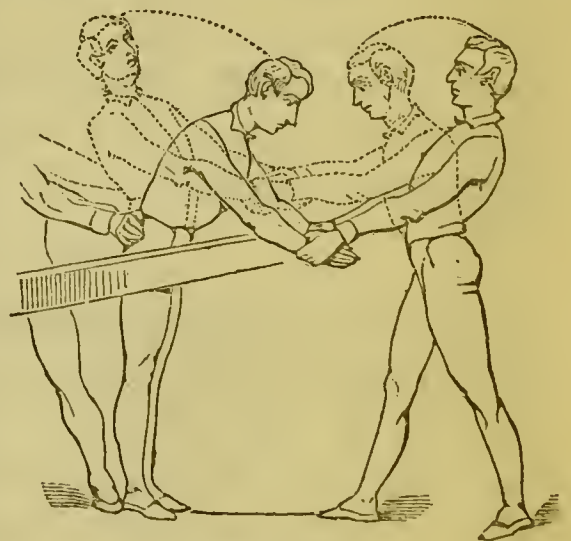


Fig. 32.

indicated in the engraving by the dotted lines; a second gymnast standing behind the patient fixes with his hands the hips of the patient, and with one foot placed transversely, prevents the feet of the patient from slipping backwards.

If *trunk-flexion-forwards* (P. R.) is to be done in the same position, the dotted lines show the commencing position of the movement.

Trunk-side-flexion (G. R.)

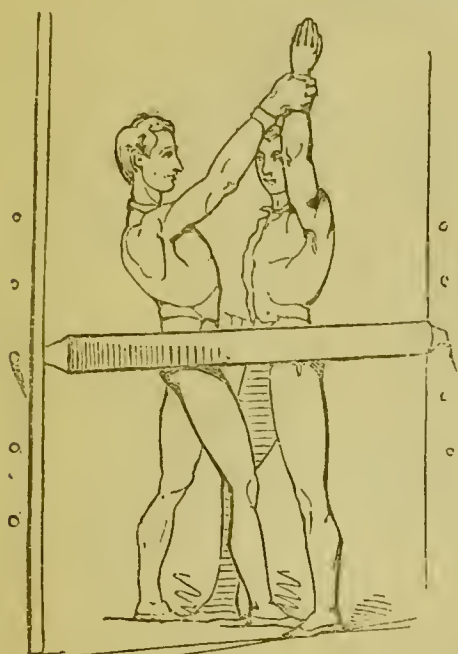


Fig. 33. Commencing position

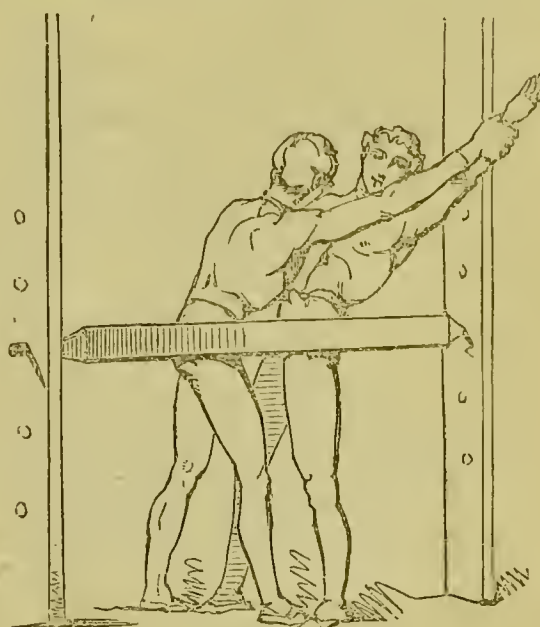


Fig. 34. Final position

of

Left-stretch, left-hip-lean, right-walk-standing, trunk-side flexion to the left (G.R.), and *trunk raising* (G.R.)

This is a flexion of the trunk to the left, done by the patient while the gymnast resists on the stretched arm, which is vertical and inflexible, so that it does not move except simultaneously with the body. Fig. 33 shows the patient's left arm stretched, his left hip leaning against a horizontal padded bar, his right leg in a position as if walking; the gymnast in front of the patient is also in right-walk position; his left hand on the patient's right hip fixes the body, while he takes hold with his right of the patient's stretched arm, and resists as long as the patient bends the body to the left; from this position (Fig. 34) he raises the body again into the commencing position, while the patient resists. After a short interval the two movements are alternately repeated three or four times, and as often on the other side. The operator as well as the patient must move only in the spine, while their feet and legs remain immovable.

The following movements have been first illustrated by Dr. Eulenburg, in his work on the "Treatment of Abdominal

Complaints by the Movement-cure," where the *rationale* of the application of movements for the cure of abdominal diseases is more fully corroborated by the testimony of several eminent German physiologists and physicians.

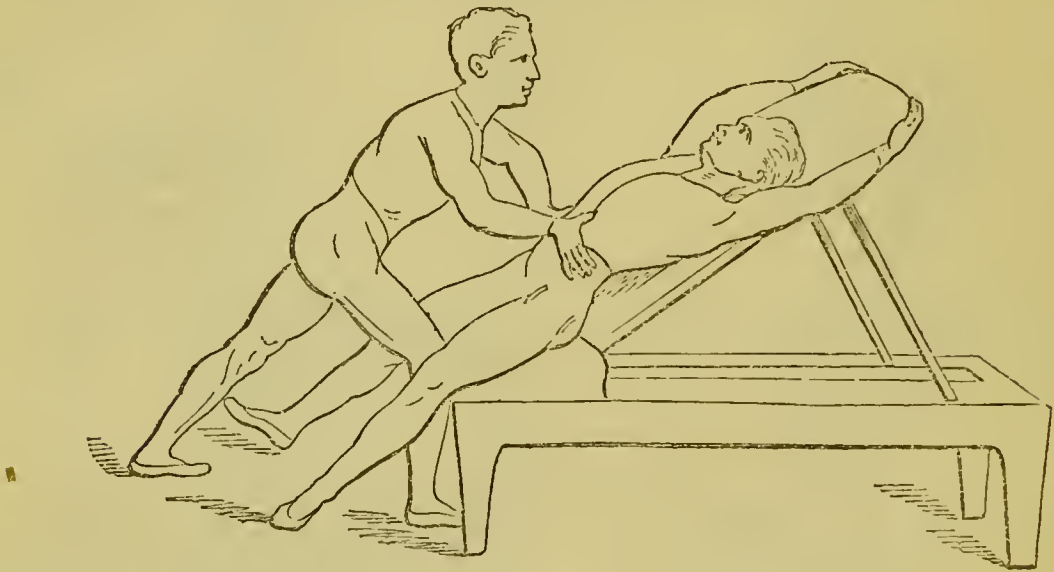


Fig. 35.

Stretch-stride, half-lying, concentric friction on the abdomen.

"The commencing position is sufficiently clear by the engraving; the gymnast standing before the patient; whose abdomen is made tense by the position, makes concentric stroking movements all over the abdomen; his hands, with the fingers directed outwards, are slowly turned, till the fingers touch each other on the mesial line of the patient, whence they are moved horizontally outwards; during the manipulation the hands press gently on the abdomen. The gymnast begins the concentric movements on the pit of the stomach, and continues them downwards all over the abdomen; the whole manipulation is repeated ten to twelve times in succession. A reflex action upon the sympathetic nerve, produced by the gentle stimulus on the sensitive cutaneous nerves, is produced, and thus indirectly all peristaltic movements of the intestines increased. The effect of the movement is analogous to that of the circular frictions on the lower part of the abdomen, which produces contractions of the relaxed uterus, and is also analogous to that of frictions on the stomach, recommended by Oppolzer in *dilatatio ventriculi*."—(Eulenburg.)

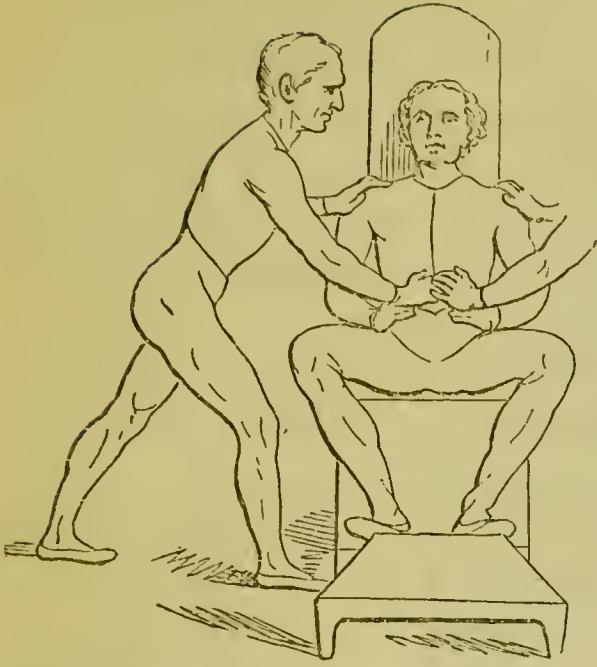
Abdomen-fulfilling.

Fig. 36. *Wing-reclined, stride-sitting, abdomen-fulfilling.*

This is a passive manipulation, executed by one or two gymnasts, while the patient is in a reclined position with the legs bent in the hip and knee-joints, and his feet supported by a foot-stool; the two gymnasts, standing one on each side of the patient, place one of their hands upon the patient's relaxed abdomen in the manner shown in the figure, and moving their hands fifteen to twenty times either alter-

nately in supination and pronation, or by alternately raising the wrist and fingers; thus they produce a kind of kneading action all over the abdomen, or especially on one spot if so required; the manipulation is repeated three or four times. This passive movement increases the activity of the abdominal organs, promotes the abdominal venous and lymphatic circulation, and contributes to the excretion of fecal matters.—(Eulenburg.)

Abdomen-vibration.

Fig. 37. *Relaxed sitting, abdomen-vibration.*

The patient sits, as shown in the engraving, with the trunk relaxed, and without any action of the abdominal muscles; two gymnasts, one standing before, the other behind the patient, place their hands (while one of their hands is covered by the hand of the other) below the lowest ribs and above the patient's hip; they press firmly, and while they uniformly move their hands alternately forwards and

backwards, they produce a strong vibration on the patient's

abdomen. A vibration is also done in the commencing position, illustrated by Fig. 35, and in many other positions.

The vibration acts like a mechanical stimulus on the vasomotor nerves, on the veins and lymphatic vessels, on the glandular abdominal organs, and on the contractibility of the intestinal muscular layers.—(Eulenburg.)



Fig. 38.

Fig. 38 is another commencing position for *abdomen-fulling*, or *abdomen-vibration and pressure*. The patient standing between two poles on his toes, and with the knees bent, takes hold of the poles, and while one or two gymnasts make the passive manipulation on the abdomen, he raises himself by stretching his legs, and the movement is thus a mixed one, composed of an active and passive movement.

DISEASES IN WHICH THE MOVEMENT-CURE IS USED.

The chronic diseases in which the movements are used, either as the sole means of cure, or in combination with other remedies, are the following:

Deformities of the spine and joints, chicken breast, contraction, distortion of the limbs, ruptures, especially the inguinal and umbilical ruptures, chronic bronchial catarrh, tuberculosis in its first stages.

Bad digestion, flatulency, constipation and diarrhœa, colics, piles, qualitative and quantitative disorders of the menstruation, anæmia, want of colouring substance in the blood, accompanied by chronic headache, and other symptoms of deranged circulation.

Mesenteric disease, scrophulous affections of various forms.

All kinds of what we call nervous affections, spasms, paralysis, hysteria, hypochondriasis.

Incontinentia urinæ in children.

All diseases which are accompanied by coldness of hands and feet.

Chronic gout and rheumatism, first stage of consumption.

Diseases of the heart, with regard to which, Froriep, in a paper on the Treatment of Chronic Diseases by Movements, expresses himself in the following way:—

“In diseases of the heart, cautious, and well-applied muscular exercise must be of considerable use; I do not mean active gymnastics, because every violent effort increases the action of the heart, and consequently the morbid symptoms. By the almost fatal inactivity of the muscular system, which is frequently observed in heart disease, the patient becomes still weaker, the vital process in the peripheric parts diminishes, and the predisposition to internal congestive states and exudations is increased by the irregular circulation; while on the other hand, a suitable development of the peripheric muscles, and better circulation in the external parts, would prevent or retard the congestions which threaten the internal organs in consequence of the mechanical obstacles present in these diseases. There is no doubt that passive gymnastics, based on anatomical and physiological laws, and directed with the necessary caution, and in certain cases, perhaps also some active exercises, would certainly contribute more to render the circulation uniform, than digitalis, nitre and iodine, endowed as they are, in the eyes of the profession, with magical powers.”

Neumann mentions also morbus Brightii and dropsy, chronic ulcers of the stomach and bowels, chronic inflammation of the membranes of the eyes, chronic diseases of the corpus vitreum and the retina, epilepsy, chorea, and mental diseases (as long as the patient will apply himself to gymnastics), as belonging to the disorders which may be improved by medical gymnastics.

In the asylum at Vienna, Ling's medical gymnastics have been introduced by order of the government.

The introduction of this system into hospitals, and the use of gymnastics during convalescence after various acute diseases, would prevent many relapses, and enable the patient, immediately on leaving the hospital, to return to his usual occupation stronger than before his illness.

Marasmus senilis, and the morbid symptoms accompanying old age may be very much retarded, and very often prevented, in the same manner as the diseases to which constitutionally weak infants and youths are predisposed.

In asylums for idiots, the use of the old gymnastics is already appreciated, but the importance of Ling's ideas is not yet recognized.

In institutions for the deaf and dumb, and especially those for the blind, rational gymnastics should become a necessary branch of education, especially as the dumb are obliged to express their ideas by movements, and as the blind, through their unhappy state, are too frequently disposed to many diseases.

I cannot close this paragraph without the following quotations from Dr. Jaeger's *Gymnastik der Hellenen*, and from Dr. Melieher's *Report of his Medico-Gymnastic Institution*.

“ Well regulated gymnastics are the best and indeed the only real and natural remedies of the human organism. When looking at a human body gymnastically developed, what an excellent architect does the art of gymnastics appear. The framework is firm, manly, square built; the bones compact, and hard in material and texture; the spine upright and well shaped; the chest rises free, strong, and arched; the head is thrown back, resting on the proud towering neck, and exhibits the outline of a noble-looking profile, beaming with spiritual expression; thus gymnastics not only proves the best architect with regard to the frame-work, but also by its chemical and plastic influence on the tendons, vessels, and humours, gives strength, durability, and manliness. The tendons and muscles become dense, elastic, and swell powerfully; their action and movements betray the highest power and tension; the whole organism is full of life and energy, and the fatty mass produced by relaxation and inactivity nowhere exists. The ligaments of the joints are kept in a state of perfect mobility and elasticity, and are at the same time strengthened so that there results the highest degree of agility, precision, and decision in the movements of the body, and the most admirable power of persistence during fatiguing exertions; the skin becomes firm and fitted to protect the body from injuries, from

too violent perspiration, and from disease; the blood becomes thoroughly mixed and actively circulated, by which the vital warmth is increased and the dead venous blood removed; the nerves are invigorated, rendered less sensitive to external impressions and stimuli, and are thus in their vital manifestations completely under the influence of the will; all the internal vessels are strengthened, developed, and rendered capable of great vital activity and energy, by the condition of energy and vigour with which the body generally is endowed; the senses are invigorated, the bodily wants and impulses are simplified and made more subservient to a free and independent will.

“The effect especially on the sexual organs is worthy of deep and earnest attention; this being the latest of the bodily developments, is always liable to be more precarious and to be wrongly directed in proportion as the body is little exercised and the nerves become more weak and irritable from the want of a vigorous development of body. Gymnastics are here the most powerful and indeed the only means of preventing the bodily and mental ruin which hence originate.”

“Gymnastics restore lost health and strength, and improve it when restored; give to the body the capability of long continued labour and exertion, prevent the premature advent of old age, protect the body against disease, and enable it to overcome such disease when contracted. The natural powers are roused, and the whole body kept in a state of permanent strength; and where the strength has from any cause failed, that vital warmth which is prepared within, finding its way to the exterior, endues the joints with new force.

“It is therefore to be regretted that many persons have such erroneous views and prejudices about medical gymnastics as to believe that to children, weak persons, the paralytic, and those who suffer from chest complaints, rational medico-gymnastic treatment is less suitable than any other; such persons evidently decide upon a subject which they do not understand, on a system which they have neither examined nor practised, and the effects of which they have not felt; they are recommended practically to test this system before giving an opinion.”

DESCRIPTION OF THE RUSSIAN BATH.—(SEE FRONTISPIECE.)

The drawing represents a Russian bath invented by myself, and the mode of applying hot or cold water, or vapour, to the surface of the body for hygienic and curative purposes. *A* is a bath supplied and emptied by the taps *a b c* on the top; the patient is laid upon a cane-work cover when vapour is to be administered. *d e* are steam pipes connected with a steam generator. On pulling the handle *f*, the steam rushes through the pipe and fills the bath-room with vapour. The pipe *e* is carried into the bath *A*, below the cane-work, so as to produce an under current of vapour when the handle *h* is pulled. A similar pipe, *i*, is furnished with a flexible tube *k*, and socket joint *l*, for directing the vapour to any required part of the body in local complaints. *m* is a handle connected with the rose jet *n*, forming a shower bath. The pipe *a* supplies either hot or cold water to the douche and rose jets *p q*, affixed to the ceiling, by turning the handles *r s t u*. By turning the handle *v*, the water is directed through the jet *w*, or those marked *x y*. *z* is a stool upon which the patient is seated, when the jet *w*, or upward current, is required. The room is constructed of polished slate or marble, and the floor heated by means of double steam pipes shown in the dotted lines *a*. *b* is a basin supplied with water, for sponging the body when requisite. *c* is a bell to ring for the attendant. The aperture *d*, in the cane-work, allows the handle *m* to be worked when the cane-work is thrown back, and the bath *A* is in use.

The practical advantages of this bath, the application of cold and warm water, and vapour, under all different forms of shower, douche, rain bath, full bath, etc., may be seen at the Institution (16A, Old Cavendish Street, Cavendish Square), which is open for inspection to any medical man, invalid, or other person interested in the introduction of similar baths.

RULES TO BE OBSERVED DURING THE TREATMENT BY THE
RUSSIAN BATH.

a. Patients accustomed to much wine, beer, or spirits, must abandon the intemperate use of them, because whatever causes determination of blood to the head must be avoided.

b. Every kind of fat and salted meats, rich and seasoned soups, raw vegetables, pickles, vinegar, and spices retard the cure.

c. Patients should accustom themselves to wash the whole body in the morning as soon as they leave their beds, first with tepid water, and then gradually with cold water; this must be done very quickly with a sponge, never exceeding from two to five minutes, and should be followed by a friction with rough towels, till the skin becomes warm and red.

d. Those able to walk should do so before and after the bath, if the weather is favourable. In many cases exercise after the bath is not only advisable but absolutely necessary. Where perspiration is necessary after the bath, it is better to remain for a while in-doors, and then to ride home. In damp and cold weather, exercise in the open air is of no use, and active movements in the house must be substituted for it.

e. Violent exercise before as well as after the bath is bad, because the bath does not act beneficially in an exhausted state of the body; after it has been used, the circulation being very much increased, such exercise might produce congestion in the nobler organs.

f. The mind must be tranquil; the patients must be neither timid nor anxious, as is often the case in the first bath, when they are not accustomed to breathe an air impregnated with vapour; fatiguing mental labours must be omitted.

g. The treatment can be commenced at any time of the year; the bath should be taken between breakfast and

luncheon, or an hour before dinner, or two or three hours after dinner. It is very bad to enter the bath with a full stomach, but it is not advisable to bathe fasting; the bath should not be taken too late in the evening.

h. The temperature of the bath-room should be, at the commencement, from 90 to 100 degrees, and should be increased during the bath to 105, 110, or 115 degrees; in particular cases it can be increased still more without injury; the temperature must be varied also according to the state of the disease and the constitution of the patient.

i. The bath must be filled with vapour before the patient enters, because if he is heated only by hot air, it is too dry and often injurious to the head and respiratory organs.

k. Persons whose bowels have not been relieved for several days, would find benefit by using before the bath an enema of tepid water, to which may be added, if necessary, a table-spoonful of olive oil or honey.

l. As soon as the body perspires profusely, it is rubbed with soap and flannel, hair gloves, brushes; afterwards tepid or cold water is poured over it, and different manipulations are performed, which consist, according to the effects to be produced, in the general or local application of kneading, percussion, rolling, clapping, tapping, pressing, squeezing; these manipulations are repeated according to the feelings of the bather, if he is healthy; and according to the prescription, if a patient. The pouring over of water is also repeated, tepid and cold being sometimes alternated; shower-baths, local vapours, douche, general or local column-douche, ascending douche, and other applications of different degrees of cold or warm water and steam are used, according to the prescription.

m. The curative effects of the bath depend principally upon the various combinations of the different means with which we most frequently combine active movements; the more so, as in many cases the patient can move one or another part only in the bath.

The physician has a wide field for his prescription, in the combination, as well as in the alternation and succession of the elements of which a Russian bath is composed. In the

bath is a vessel filled with pure fresh water, in which a sponge or towel is dipped, for the purpose of keeping it before the nose and mouth, if the bather should feel uneasy, which is sometimes the case at the beginning of the treatment, until he is accustomed to inhale freely the air impregnated with vapour. To prevent headaches, to the top of the head and forehead cold compresses are applied, which must be changed as they become warm; these, though keeping the head cool, do not prevent the perspiration of the body; at the same time the local vapour-douche is to be used on the legs, increasing the manipulations on them till the circulation is more equal.

There is no objection to cold water being drunk in small quantities, even during the perspiration itself, which is often increased by drinking; in certain cases it is good to drink one or two tumblers of cold water before you enter the bath-room, a practice recommended by some physicians.

The duration of the bath depends upon the disease, the constitution of the body, habit, the degree of temperature, the more or less frequent immersion in cold water or ablutions with it: ordinarily twenty-five to thirty-five minutes are sufficient for curative as well as hygienic effects; too long a stay in the bath, or too high a temperature, may be as injurious as any other remedy when abused.

After the bath.—The patient, having been cooled by the cold water and well rubbed, either dresses quietly, or (especially if tepid water only has been used) lies down in another room, enveloped in blankets, till a fresh perspiration appears, which is to be kept up for a quarter to half an hour; afterwards, friction with a sponge, or a towel dipped in cold water, is used to restore the tone of the skin, and to prevent catching cold.

Repetition of the bath.—Whether the bath is to be repeated, and when, depends upon its effect, the feelings of the patient, and the disease, which must guide the physician in prescribing. Healthy persons should not take more than one bath a-week, which is sufficient to keep up the activity of the skin.

In chronic cases, two or three baths a-week are sufficient;

in very painful disorders, and when the patient has relief only in the bath, or for a couple of hours after it, the bath can be prescribed daily; and as soon as there is a longer intermission of the pains, the bath is taken on alternate days. In other cases we use the bath on two or three successive days, and omit it the third or fourth day. It is very difficult to give exact rules with regard to the repetition, because the experience of the physician must often be his best guide.

If the local application of the steam-douche is necessary, the part which is to be acted upon particularly must not in the beginning be exposed too much and too near to the steam, but gradually; the intensity and duration of the application are also increased gradually; a rule which is to be observed in all the processes of the bath, more especially with regard to very delicate, low-spirited, and weak persons, who, if the necessary caution is observed, not only very soon become accustomed to endure the bath in its different degrees, but also to enjoy it, and feel their spirits raised, their strength increased, and their health improved.

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